



MAEDA

Expansion of Shek Wu Hui Sewage Treatment Works

Monthly EM&A Report
(February 2006)

March 2006

Report no: 01284R0072

Hyder Consulting Ltd

Incorporated in Hong Kong with limited liability—COI Number 126012
47th Floor, Hopewell Centre, 183 Queens Road East, Wanchai, Hong Kong
Tel: +852 2911 2233 Fax: +852 2805 5028
www.hyderconsulting.com





MAEDA

Expansion of Shek Wu Hui Sewage Treatment Works

First Quarterly EM&A Report (Dec 05 – Feb 06)

Author: Claudine Lee

Checker: Sharifah Or

Approver: Guiyi Li

Report no: EA01284R0091

Date: March 2006

This report has been prepared for in accordance with the terms and conditions of Maeda Corporation appointment for the Expansion of Shek Wu Hui Sewage Treatment Works in October 2005. Hyder Consulting Ltd (Incorporated in Hong Kong with limited liability—COI Number 126012) cannot accept any responsibility for any use of or reliance on the contents of this report by any third party.

Certified by Environmental Team Leader
Sharifah Or

Consulting

Contents

1	Executive Summary	1
2	Introduction	2
2.1	Basic Information.....	2
2.2	Management Structure and Project Organisation	2
2.3	Construction Programme	3
2.4	Works Undertaken during the Reporting Month	3
2.5	Status of Environmental Permit/ Licence	3
3	Environmental Status	4
3.1	Works Undertaken during the Month with Illustrations	4
3.2	Project Area, Environmental Sensitive Receivers and Monitoring Locations	4
4	Brief Summary of EM&A Requirements.....	4
4.1	Monitoring Parameters	4
4.2	Action and Limit Levels	5
4.3	Event and Action Plans	5
4.4	Environmental Mitigation Measures and Requirements.....	8
5	Implementation Status of Environmental Protection and Pollution Control/ Mitigation Measures.....	8
6	Monitoring Results.....	8
6.1	Monitoring Methodology	8
6.2	Name of Laboratory, Types of Equipment Used and Calibration Details	10
6.3	Parameters Monitored.....	11
6.4	Monitoring Locations	11
6.5	Monitoring Date, Time, Frequency and Duration, Weather Condition and Other Factors	12
6.6	Results and Graphical Plots of Monitoring Parameters.....	13
6.7	Factors Which Might Affect the Monitoring Results.....	15
6.8	QA/QC Results and Detection Limit	15
7	Non-compliance, Complaints, Notifications of Summons and Successful Prosecutions	15
7.1	Non-compliance of Action and Limit Levels	15
7.2	Complaints Received	15
7.3	Notifications of Summons and Successful Prosecutions.....	16
7.4	Review of the Reasons and Implications of Non-compliance, Complaints, Summons and Prosecutions.....	16
7.5	Site Inspection	16

8	Waste Management Status.....	18
9	Future Key Issues	18
10	Comments, Recommendations and Conclusions.....	18

List of Tables

Table 2-1	Key Personnel Contact Names and Telephone Number for the Project	3
Table 2-2	Status of Permit/Licence for the Project	4
Table 4-3	Event/ Action Plan for Air Quality Monitoring	7
Table 4-4	Event/ Action Plan for Noise Monitoring	8
Table 6-5	Monitoring Equipment	11
Table 6-6	Air Quality Monitoring Locations	11
Table 6-7	Noise Monitoring Locations	11
Table 6-8	Sampling Schedule of Air Quality Monitoring	12
Table 6-9	Sampling Schedule of Noise Monitoring	13
Table 6-10	Air Quality Monitoring Results	14
Table 6-11	Noise Monitoring Results	15
Table 7-12	Summaries of Site Inspections and Recommendations	17

List of Appendices

Appendix 1	Project Organization
Appendix 2	Construction Programme
Appendix 3	Location of Works
Appendix 4	Project Area, Environmental Sensitive Receiver and Monitoring Location
Appendix 5	Action and Limit Levels
Appendix 6	Environmental Requirement and Implementation Status
Appendix 7	Calibration Records
Appendix 8	Monitoring Results and Graphical Plots
Appendix 9	QA/QC Results and Detection Limit
Appendix 10	Cumulative Number of Complaint, Notification of Summon and Successful Prosecution
Appendix 11	Upcoming EM&A Schedule

1 Executive Summary

The expansion of Shek Wu Hui Sewage Treatment Works (SWHSTW) aims to increase the treatment capacity of the existing SWHSTW to cope with the increasing wastewater flows and loads as a result of the population growth in the catchment area of Fanling/Sheung Shui and the committed extension of sewerage system to unsewered areas. It is considered as a project constituting a material change to an exempted designated project under Schedule 2 of EIAO. Thus, the procedures under the EIAO have been followed and an Environmental Monitoring and Audit (EM&A) Programme has to be carried out. The present report documents the outcomes of the EM&A Works undertaken during February 2006.

Breaches of Action and Limit Levels

Noise

No non-compliance of action/limit level was recorded at all monitoring stations for noise during the reporting month.

1-hr TSP

No non-compliance of action/limit level was recorded at all monitoring stations for 1-hr TSP during the reporting month.

24-hr TSP

No non-compliance of action/limit level was recorded at all monitoring stations for 24-hr TSP during the reporting month.

Complaints Log

During this reporting month, no environmental complaint was received.

Notifications of Any Summons and Successful Prosecutions

During the reporting month, no notification of summons or successful prosecution was recorded.

Reporting Changes

There was no reporting change during February 2006.

Future Key Issues

The construction activities for the coming three months will include the construction of permanent H-piles, the setup of loading tests for the piles, cable / utilities diversion, the relocation of FeCl₃ tank, sheet piling work, sub-structure and superstructure construction and excavation works.

2 Introduction

2.1 Basic Information

Shek Wu Hui Sewage Treatment Works (SWHSTW) provides treatment to the wastewater generated from Fanling/Sheung Shui areas before discharge it into Mai Po Inner Deep Bay Ramsar Site through River Indus and Shenzhen River, thus helps protecting the water quality of River Indus, Shenzhen River and Mai Po Inner Deep Bay Ramsar Site. The expansion of SWHSTW aims to expand the treatment capacity of the existing SWHSTW to cope with the increasing wastewater flows and loads as a result of the population growth in the catchment area of Fanling/Sheung Shui and the committed extension of sewerage system to unsewered areas.

In accordance with Section 9(2)(g) of the Environmental Impact Assessment Ordinance (EIAO), the SWHSTW is an exempted designated project as the existing SWHSTW has been in operation before the EIAO came into effect on 1 April 1998. However, since the proposed works involve physical expansion and alternation to the existing SWHSTW (hereafter called “the Project”) and may cause adverse environmental impacts if mitigation measures are not in place, it shall be considered as a project constituting a material change to an exempted designated project under Schedule 2 of EIAO. Hence the procedures under the EIAO have been followed. A Project Profile (PP) for direct application of the EP (Application No.DIR-121/2005) was approved by Environmental Protection Department (EPD) in May 2005 and an environmental permit (EP-218/2005) was obtained prior to the commencement of the expansion works.

Drainage Services Department (DSD) awarded the civil contract of the expansion of SWHSTW to Maeda Corporation (Maeda) in September 2005. Maeda appointed Hyder Consulting Limited (HCL) as the Contractor’s Environmental Team (ET) during the construction period. CH2M-IDC Hong Kong Limited is the independent environmental checker (IEC). The construction contract commenced in September 2005 and the total construction period is approximately 36 months. The notified commencement date of work to the Director of EPD is 14 December 2005.

2.2 Management Structure and Project Organisation

The Engineer (DSD) is responsible for overseeing the construction works and ensuring that they are undertaken by the Contractor (Maeda) in accordance with the specification and contractual requirements. The Contractor shall report to the Engineer. The ET is employed by the Contractor and is responsible for conducting the EM&A programme. The IEC shall advise the Engineer on the environmental issues related to the Project.

The key personnel contact names and telephone number are summarised in Table 2-1. The project organisation is shown in Appendix 1.

Party	Position	Name	Telephone number
Project Proponent - DSD	Project Manager	Raymond Lee	2594 7457
	Engineer's Representative	Tim Tsoi	2594 7460
Contractor - Maeda	Site Agent	George Cheung	9268 1918
ET - Hyder	ET Leader	Sharifah Or	2911 2730
IEC – CH2M-IDC	IEC	David Yeung	2872 2934

Table 2-1 Key Personnel Contact Names and Telephone Number for the Project

2.3 Construction Programme

Construction programme of the Project is attached in Appendix 2.

2.4 Works Undertaken during the Reporting Month

Works undertaken during the reporting month included:

- The construction of preliminary pile (Portion 1);
- The construction of permanent pile (Portions 2 and 3);
- Cable / utilities division (Portion 2);
- Set up of loading tests for the piles (Portion 1); and
- Excavation work (Portions 1, 2 and 3).

2.5 Status of Environmental Permit/ Licence

The status of the Environmental Permit/Licence for the Project is shown below.

Permit/Licence	Application Date	Date of issue	Ref. No.	Valid Until
Environmental Permit	21 May 2005	16 June 2005	EP-218/2005	N/A
Notification was made to EPD pursuant to Section 3(1) of the Air Pollution Control (Construction Dust) Regulation (Form NA was submitted)	22 Sep 2005	N/A	N/A	N/A
Registration as a chemical waste producer	26 Sep 2005	4 Nov 2005	WPN: 5213-624-M2446-06	N/A
Effluent Discharge Licence	11 Nov 2005	20 Dec 2005	Licence No.: W5/11287/1	19 Dec 2010
Application for Exemption Account for Disposal of Construction Waste	12 Dec 2005	Approved by EPD on 31 Dec 05	Application No.: RN/00134	25 Sep 2008
CNP (For 2 Generators operating between 0700 and	25 Nov 2005	12 Dec 2005	GW-RN0597-05	Cancelled with effect on

Permit/Licence	Application Date	Date of issue	Ref. No.	Valid Until
2300 on General Holiday and between 1900 and 2300 on Any Day not being a General Holiday at Site Office)				13 Feb 2006

Table 2-2 Status of Permit/Licence for the Project

3 Environmental Status

3.1 Works Undertaken during the Month with Illustrations

The site has been subdivided into different Works Areas/Portions as illustrated in Appendix 3. The construction of preliminary pile was carried out at Portions 1. The construction of permanent pile was carried out at Portions 2 and 3. The setup of loading tests for the piles was carried out at Portion 1. Cable / utilities division was carried out at Portion 2 and the excavation of trial pits was conducted at Portions 1, 2 and 3.

3.2 Project Area, Environmental Sensitive Receivers and Monitoring Locations

The site is located at the existing Shek Wu Hui Sewage Treatment Plant, next to Chuk Wan Street. Project area, environmental sensitive receivers and monitoring locations are shown in Appendix 4.

4 Brief Summary of EM&A Requirements

4.1 Monitoring Parameters

4.1.1 Air Quality

During the construction phase impact monitoring, 1-hour and 24-hour Total Suspended Particulates (TSP) levels should be measured at the selected air monitoring locations in accordance with the EM&A Manual. These two parameters are aimed to indicate the impacts of construction dust on air quality.

4.1.2 Noise

The construction noise level should be measured in terms of the A-weighted equivalent continuous sound pressure level (L_{eq}) for 30 minutes. $L_{eq(30\text{ min})}$ is used as the monitoring parameter for the period between 0700 and 1900 hours on normal

weekdays. For all other time periods, three consecutive $L_{eq(5min)}$ are employed for comparison with the Noise Control Ordinance (NCO) criteria.

Other noise parameters such as L_{10} and L_{90} should also be obtained for reference.

4.2 Action and Limit Levels

4.2.1 Air Quality

The baseline monitoring results documented in the Baseline Monitoring Report for the Project (our report ref.: EA01284R0012) form the basis for derivation of the Action and Limit Levels for air quality impact monitoring. Appendix 5 shows the derived Action and Limit Levels for the Project. If the air quality criteria are exceeded due to the Project, the Event/Action Plan summarised in Table 4-3 should be triggered immediately.

4.2.2 Noise

The Action and Limit Levels for construction noise are defined in Appendix 5. If valid non-compliance of the criteria occurs, actions in accordance with the Event and Action Plan in Table 4-4 should be implemented. If construction works are undertaken during the restricted hours, a construction noise permit under NCO shall be obtained by the Contractor.

4.3 Event and Action Plans

The Event and Action Plans for air quality and noise monitoring are shown in Tables 4-3 and 4-4, respectively.

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
ACTION LEVEL				
Exceedance for one sample	<ul style="list-style-type: none"> Identify source, investigate the causes of exceedance and propose remedial measures; Inform IEC and ER; Repeat measurement to confirm finding. 	<ul style="list-style-type: none"> Check monitoring data submitted by ET; Check Contractor's working method. 	<ul style="list-style-type: none"> Notify Contractor. 	<ul style="list-style-type: none"> Rectify any unacceptable practice; Amend working methods if appropriate.
Exceedance for two or more consecutive samples	<ul style="list-style-type: none"> Identify source, investigate the cause of exceedance and propose remedial measures ; Inform IEC and ER; Advise ER on the 	<ul style="list-style-type: none"> Check monitoring data submitted by ET; Check Contractor's working method; Discuss with ET and Contractor on 	<ul style="list-style-type: none"> Confirm receipt of notification of exceedance in writing; Notify Contractor; Ensure remedial measures properly 	<ul style="list-style-type: none"> Submit proposals for remedial to ER within 3 working days of notification; Implement the agreed proposals; Amend proposal if

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
	<p>effectiveness of the proposed remedial measures;</p> <ul style="list-style-type: none"> Repeat measurements to confirm findings; Increase monitoring frequency to daily; Discuss with IEC and Contractor on remedial actions required; If exceedance continues, arrange meeting with IEC and ER; If exceedance stops, cease additional monitoring. 	<p>possible remedial measures;</p> <ul style="list-style-type: none"> Advise the ET on the effectiveness of the proposed remedial measures; Supervise Implementation of remedial measures. 	<p>implemented.</p>	<p>appropriate.</p>
LIMIT LEVEL				
Exceedance for one sample	<ul style="list-style-type: none"> Identify source, investigate the causes of exceedance and propose remedial measures; Inform IEC, ER, Contractor and EPD; Repeat measurement to confirm finding; Increase monitoring frequency to daily; Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results. If exceedance stops, cease additional monitoring. 	<ul style="list-style-type: none"> Check monitoring data submitted by ET; Check Contractor's working method; Discuss with ET and Contractor on possible remedial measures; Advise ER on the effectiveness of the proposed remedial measures; Supervise implementation of remedial measures. 	<ul style="list-style-type: none"> Confirm receipt of notification of exceedance in writing; Notify Contractor; Ensure remedial measures properly implemented. 	<ul style="list-style-type: none"> Take immediate action to avoid further exceedance; Submit proposals for remedial actions to IEC within 3 working days of notification; Implement the agreed proposals; Amend proposal if appropriate.
Exceedance for two or more consecutive samples	<ul style="list-style-type: none"> Notify IEC, ER, Contractor and EPD; Identify source, investigate the cause of exceedance and propose remedial measures; Repeat measurement to confirm findings; Increase monitoring frequency to daily; Carry out analysis of Contractor's working 	<ul style="list-style-type: none"> Discuss amongst ER, ET, and Contractor on the potential remedial actions; Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise ER accordingly; Supervise the implementation of 	<ul style="list-style-type: none"> Confirm receipt of notification of exceedance in writing; Notify Contractor; In consultation with the IEC, agree with the Contractor on the remedial measures to be implemented; Ensure remedial measures properly implemented; If exceedance 	<ul style="list-style-type: none"> Take immediate action to avoid further exceedance; Submit proposals for remedial actions to IEC within 3 working days of notification; Implement the agreed proposals; Resubmit proposals if problem still not under control; Stop the relevant portion of works as

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
	procedures to determine possible mitigation to be implemented; <ul style="list-style-type: none"> • Arrange meeting with IEC and ER to discuss the remedial actions to be taken; • Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results; • If exceedance stops, cease additional monitoring. 	remedial measures.	continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated.	determined by ER until the exceedance is abated.

Table 4-3 Event/ Action Plan for Air Quality Monitoring

EVENT	Action			
	ET	IEC	ER	CONTRACTOR
Action Level	<ul style="list-style-type: none"> • Notify IEC and ER; • Carry out investigation; • Report the results of investigation to the IEC, ER and Contractors; • Discuss with the Contractor and formulate remedial measures; • Increase monitoring frequency to check mitigation effectiveness. 	<ul style="list-style-type: none"> • Review the analysed results submitted by the ET; • Review the proposed remedial measures by the Contractor and advise the ER accordingly; • Supervise the implementation of remedial measure. 	<ul style="list-style-type: none"> • Confirm receipt of notification of failure in writing; • Notify Contractor; • Require Contractor to propose remedial measures for the analysed noise problem; • Ensure remedial measures are properly implemented. 	<ul style="list-style-type: none"> • Submit noise mitigation proposal to IEC; • Implement noise mitigation proposals.
Limit Level	<ul style="list-style-type: none"> • Identify source; • Inform IEC, ER, EPD and Contractor; • Repeat measurements to confirm findings; • Increase monitoring frequency to check mitigation effectiveness; • Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented; • Inform IEC, ER and 	<ul style="list-style-type: none"> • Discuss amongst ER, ET, and Contractor on the potential remedial actions; • Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly; • Supervise the implementation of remedial measures. 	<ul style="list-style-type: none"> • Confirm receipt of notification of failure in writing; • Notify Contractor; • Require Contractor to propose remedial measures for the analysed noise problem; • Ensure remedial measures properly implemented; • If exceedance continues, consider what portion of the work is responsible and instruct the 	<ul style="list-style-type: none"> • Take immediate action to avoid further exceedance; • Submit proposals for remedial actions to IEC within 3 working days of notification; • Implement the agreed proposals; • Resubmit proposals if problem still not under control; • Stop the relevant portion of works as determined by the ER until the exceedance is abated.

EVENT	Action			
	ET	IEC	ER	CONTRACTOR
	EPD the causes and actions taken for the exceedances; <ul style="list-style-type: none"> Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results; If exceedance stops, cease additional monitoring. 		Contractor to stop that portion of work until the exceedance is abated.	

Table 4-4 Event/ Action Plan for Noise Monitoring

4.4 Environmental Mitigation Measures and Requirements

The recommended measures for mitigating air quality, water quality, noise, waste and all other possible environmental impacts due to the construction works have been stated clearly in the EM&A Manual. The details of the measures implemented by the Contractor are shown in Appendix 6.

5 Implementation Status of Environmental Protection and Pollution Control/ Mitigation Measures

The status of the mitigation measures implemented by the Contractor is listed in Appendix 6.

6 Monitoring Results

6.1 Monitoring Methodology

6.1.1 Air Quality

1-hr and 24-hr TSP monitoring works were undertaken by the ET using high volume samplers (HVS). The sampling procedures followed the standard sampling method as set out in High Volume Method for Total Suspended Particulates, Part 50 Chapter 1 Appendix B, Title 40 of the Code of Federal Regulations of the USEPA.

During the sampling, dust laden air was drawn through a HVS fitted with a conditioned, pre-weighted filter paper, at a controlled rate. After sampling for 1 hour and 24 hours, the filter paper with retained particles was collected and returned to the laboratory for drying in a desiccator followed by accurate weighing. Respective 1-hour and 24-hour TSP levels were calculated from the ratio of the mass of particulates retained on the filter paper to the total volume of air sampled.

The HVSSs were equipped with an electronic mass flow controller and calibrated against a traceable standard at regular intervals. All equipment, calibration kit and filter papers were clearly labelled.

The sampling procedures and specifications were the same for 1-hour and 24-hour baseline air quality monitoring except the sampling duration. The specifications were as follows:

- 0.6-1.7 m³/min (20-60SCFM);
- Equipped with a timing/control device with +/- 5 minutes accuracy for 24 hours operation;
- Installed with elapsed time meter with +/- 2 minutes accuracy for 24 hours operation;
- Capable of providing a minimum exposed area of 406 cm² (63in²);
- Flow control accuracy: +/- 2.5% deviation over 24-hr sampling period;
- Equipped with a shelter to protect the filter and sampler;
- Incorporated with an electronic mass flow rate controller or other equivalent devices;
- Equipped with a flow recorder for continuous monitoring;
- Provided with a peaked roof inlet;
- Incorporated with a manometer;
- Able to hold and seal the filter paper to the sampler housing at horizontal position;
- Easy to change the filter; and
- Capable of operating continuously for a 24-hour period.

Relevant environmental data including temperature, pressure, weather conditions, elapsed-time meter reading for the start and stop of the sampler, identification and weight of the filter paper, and other special phenomena observed and work progress of the concerned site were also recorded.

Filter papers of size 8"x10" were labelled before sampling. They were inspected clean with no pin holes and conditioned in a humidity-controlled chamber for over 24-hr and be pre-weighed before use for the sampling.

After sampling, the filter papers loaded with dust were kept in a clean and tightly sealed plastic bag, and then returned for reconditioning in the humidity controlled chamber followed by accurate weighing by an electronic balance with a readout down to 0.1 mg. All the collected samples would be kept in a good condition for 6 months before disposal.

The weight of filter paper was measured by a HOKLAS accredited laboratory.

6.1.2 Noise

Weatherproof logging sound level meters which comply with the International Electrotechnical Commission Publication 651: 1979 (Type 1) and 804: 1985 (Type 1) specifications were used to measure the construction noise at the designated

monitoring locations. Noise parameters of the A-weighted levels L_{eq} , L_{10} and L_{90} were measured with a sampling period of 5 minutes throughout the monitoring. The average of six consecutive 5-minute readings was used to provide $L_{eq(30 \text{ minutes})}$ for non-restricted hours. A facade correction of 3dB(A) would be applied to all free field measurements.

During the impact monitoring, information such as date, weather condition, equipment used, measurement results and major noise sources were recorded on the field data record sheet. Noise measurements would not be made in fog, rain, wind with a steady speed exceeding 5 m/s or wind with gusts exceeding 10 m/s. The wind speed would be checked with a portable wind speed meter capable of measuring wind speed in m/s. All measurements were recorded to the nearest 0.1dB(A).

6.2 Name of Laboratory, Types of Equipment Used and Calibration Details

6.2.1 Name of Laboratory

Filter papers used for air quality monitoring were sent to ALS Environmental, a HOKLAS accredited laboratory, for weighing. Other sampling and analytical works were conducted by Hyder Consulting Limited, the ET.

6.2.2 Types of Equipment Used and Calibration Details

HVS - Model GBM2000H1, manufactured by Anderson Instruments Inc., was used for TSP monitoring. It complies with the USEPA specifications in Appendix B Part 50 - Reference Method for the Determination of Suspended Particulate matter in the Atmosphere (High-Volume Method) of the Code of Federal Regulation dated July 1, 1991. Initial calibration of dust monitoring equipment was conducted upon installation and prior to commissioning. One point flow rate calibration would be carried out every two months. Five-point calibration would be carried out every six months. All the calibration data were converted into standard temperature and pressure condition.

Orific HVS Calibration Kit model G2523 was used for the calibration of HVSs. Calibration of calibration kit would be carried out annually. Appendix 7 presents the monitoring equipment calibration record.

For noise monitoring, Bruel & Kjaer (B&K) Precision Integrating Sound Level Meters of Type 2238 in compliance with the International Electrotechnical Commission Publication 651: 1979 (Type 1) and 804: 1985 (Type 1) Specifications were used.

Prior to and following each noise measurement, the accuracy of the sound level meter was checked using an acoustic calibrator (B&K Type 4230) generating a known sound pressure level at a known frequency. Measurements were considered as valid only if the calibration level from before and after the noise measurement agree to within 1dB. All sound level meters and calibrators would be calibrated annually. Appendix 7 presents the monitoring equipment calibration records.

Table 6-5 summarises the types of monitoring and calibration equipment.

Equipment Type	Manufacturer	Model	Serial Number/I.D.
Sound Level Meter	B&K	Type 2238	2448529
Sound Level Meter	B&K	Type 2238	2285726
Sound Level Calibrator	B&K	Type 4231	1770806
High Volume Sampler	Anderson	GBM 2000 H1	0134
High Volume Sampler	Anderson	GBM 2000 H1	1101
Orific HVS Calibration Kit	Tisch Environmental	G2523	517N

Table 6-5 Monitoring Equipment

6.3 Parameters Monitored

Parameters monitored are described in Sections 4.1.1 and 4.1.2.

6.4 Monitoring Locations

There are two designated air quality monitoring locations identified in the EM&A Manual. Due to the access constraint, alternative monitoring locations were selected and approved by ER, IEC and EPD prior the commencement of monitoring. These alternative locations for air quality monitoring are summarised in Table 6-6 and shown in Appendix 4.

Monitoring Station ID	Name of Premises	Monitoring Location
CAM1a	San Po Street Pumping Station	Ground floor level
CAM2a	Sheung Shui Heung Floodwater Pumping Station	Ground floor level

Table 6-6 Air Quality Monitoring Locations

There are two designated noise monitoring locations identified in the EM&A Manual and their locations are described below and shown in Appendix 4.

Monitoring Station ID	Name of Premises	Monitoring Location
NM1	Wai Loi Tsuen	1.2m above ground
NM2	Temporary Domestic Structure	1.2m above ground

Table 6-7 Noise Monitoring Locations

6.5 Monitoring Date, Time, Frequency and Duration, Weather Condition and Other Factors

Monitoring frequency for 1-hr TSP and 24-hr TSP is 3 times every 6 days and once every 6 days, respectively. One set of noise measurements will be conducted between 0700 and 1900 on normal weekdays at each monitoring station on a weekly basis, when noise-generating activities are underway. Monitoring date, time and duration for noise and air quality monitoring and all other factors related to the monitoring result, such as weather condition, are listed in the following tables.

Station	Date	Time	Duration	Weather Condition
1-hr TSP				
CAM1a	2-Feb-06	0936-1235	3 X 1 hour	Fine
	7-Feb-06	0923-1230	3 X 1 hour	Fine
	13-Feb-06	1005-1307	3 X 1 hour	Sunny
	18-Feb-06	1023-1328	3 X 1 hour	Rainy
	24-Feb-06	1330-1630	3 X 1 hour	Cloudy
CAM2a	2-Feb-06	0945-1245	3 X 1 hour	Fine
	7-Feb-06	0937-1244	3 X 1 hour	Sunny
	13-Feb-06	1015-1315	3 X 1 hour	Sunny
	18-Feb-06	1030-1337	3 X 1 hour	Rainy
	24-Feb-06	1342-1643	3 X 1 hour	Cloudy
24-hr TSP				
CAM1a	2-Feb-06	1235-1235	24 hours	Fine
	7-Feb-06	1231-1231	24 hours	Fine
	13-Feb-06	1415-1415	24 hours	Sunny
	18-Feb-06	1331-1331	24 hours	Rainy
	24-Feb-06	1630-1630	24 hours	Cloudy
CAM2a	2-Feb-06	1247-1247	24 hours	Fine
	7-Feb-06	1245-1245	24 hours	Sunny
	13-Feb-06	1425-1425	24 hours	Sunny
	18-Feb-06	1340-1340	24 hours	Rainy
	24-Feb-06	1643-1643	24 hours	Cloudy

Table 6-8 Sampling Schedule of Air Quality Monitoring

Station	Date	Time	Duration	Weather Condition
NM1	2-Feb-06	1000-1030	30 minutes	Fine
	7-Feb-06	0945-1015	30 minutes	Fine
	13-Feb-06	1030-1100	30 minutes	Sunny
	24-Feb-06	1300-1330	30 minutes	Cloudy
NM2	2-Feb-06	1100-1130	30 minutes	Fine
	7-Feb-06	1045-1115	30 minutes	Fine
	13-Feb-06	1125-1155	30 minutes	Sunny
	24-Feb-06	1450-1520	30 minutes	Cloudy

Table 6-9 Sampling Schedule of Noise Monitoring

6.6 Results and Graphical Plots of Monitoring Parameters

Air quality monitoring results of 1-hour and 24-hour TSP are summarised in Table 6-10 and detailed in Appendix 8. Graphical plots of the monitoring results are also provided in Appendix 8.

Station	Date	Measured Level ($\mu\text{g}/\text{m}^3$)		Action/Limit Level ($\mu\text{g}/\text{m}^3$)	
		1-hr TSP	24-hr TSP	1-hr TSP	24-hr TSP
CAM1a	2-Feb-06	128.4	83.8	342.7/500	203.3/260
		144.6			
		133.8			
	7-Feb-06	155.5	111.0		
		154.8			
		117.0			
	13-Feb-06	196.3	177.2		
		146.9			
		114.4			
	18-Feb-06	306.3	42.2		
		87.1			
		75.7			

Station	Date	Measured Level ($\mu\text{g}/\text{m}^3$)		Action/Limit Level ($\mu\text{g}/\text{m}^3$)	
		1-hr TSP	24-hr TSP	1-hr TSP	24-hr TSP
	24-Feb-06	202.5	104.7		
		139.5			
		136.5			
CAM2a	2-Feb-06	75.3	57.6	340.2/500	201.6/260
		65.8			
		81.5			
	7-Feb-06	87.4	63.8		
		85.5			
		54.2			
	13-Feb-06	81.3	109.0		
		77.8			
		66.9			
	18-Feb-06	178.0	30.8		
		33.3			
		57.1			
	24-Feb-06	167.8	68.6		
		90.8			
		64.6			

* Shaded area indicates an exceedance of Action/Limit Level.

Table 6-10 Air Quality Monitoring Results

Noise monitoring results are summarised in Table 6-11 and detailed in Appendix 8. Graphical plots of the monitoring results are also provided in Appendix 8. As all monitoring was conducted at free field condition, a facade correction of 3dB(A) was applied to each of the noise measurements.

Station	Date	Measured Noise Level, dB(A)			Limit Level for $L_{eq}(30 \text{ min})$, dB(A)
		$L_{90}(30\text{min})$	$L_{10}(30\text{min})$	$L_{eq} (30\text{min})$	
NM1	2-Feb-06	54.4	61.4	58.8	75
	7-Feb-06	61.6	65.1	63.6	
	13-Feb-06	56.7	63.4	61.3	
	24-Feb-06	55.9	62.4	60.4	
NM2	2-Feb-06	49.4	53.6	52.0	75
	7-Feb-06	47.5	50.9	49.7	
	13-Feb-06	49.1	53.7	51.9	
	24-Feb-06	52.7	61.9	59.3	

Note : (1) Shaded area indicates an exceedance of Limit Level.

(2) A facade correction of 3dB(A) was applied to each of noise measurements.

Table 6-11 Noise Monitoring Results

6.7 Factors Which Might Affect the Monitoring Results

Dust from other sources such as roads with the movement of heavy vehicles in the vicinity of the monitoring stations would affect the air quality monitoring results.

6.8 QA/QC Results and Detection Limit

The quality assurance (QA) / quality control (QC) results and detection limit are shown in Appendix 9.

7 Non-compliance, Complaints, Notifications of Summons and Successful Prosecutions

7.1 Non-compliance of Action and Limit Levels

No non-compliance of Action or Limit Level was recorded for air quality and noise monitoring.

7.2 Complaints Received

In case of an environmental complaint received, all related parties should follow the complaints response procedures specified in the EM&A Manual.

During this reporting month, no environmental complaint was received. Cumulative number of environmental complaint is shown in Appendix 10.

7.3 Notifications of Summons and Successful Prosecutions

No notification of summons or successful prosecution was recorded during the reporting month. The cumulative number of notifications of summons and successful prosecutions are shown in Appendix 10.

7.4 Review of the Reasons and Implications of Non-compliance, Complaints, Summons and Prosecutions

7.4.1 Non-compliance of Acton/Limit Level

No non-compliance was recorded during the reporting period.

7.4.2 Complaints, Summons and Prosecutions

No complaints, summons and prosecutions were recorded during the reporting period.

7.5 Site Inspection

Weekly site inspections were carried out on 3, 6, 15 and 24 February 2006. The findings of the site inspections and appropriate mitigation measures were recorded in the site inspection checklists.

The observations raised during the site inspections, corresponding recommendations and rectification status are summarised in Table 7-12.

Inspection Date	Deficiencies	Recommendation	Status	Note / Reminder
3-Feb-06	<ol style="list-style-type: none"> Oil leakage from drilling rig was observed on site. The cap of water barrier on site was missing. 	<ol style="list-style-type: none"> Proper maintenance works should be carried out. Provision of cap is required to avoid mosquito breeding. 	<ol style="list-style-type: none"> The plant was checked and was filled before operation. The inlet of water barrier was sealed. 	<ol style="list-style-type: none"> Equipment oil and lubricant replacement should be performed in a bunded area only. After that, all oil drum and lubricant should be placed in a bunded storage area.
6-Feb-06	<ol style="list-style-type: none"> Broken gravel bags were found in the U channels close to manhole which is near the slaughter house. It was observed that there was oil stain next to the diesel cap 	<ol style="list-style-type: none"> The Contractor was recommended to remove the gravel in the U channels and replace the broken gravel bags with new one. The Contractor was 	<ol style="list-style-type: none"> The gravel bag in the U-channels was removed and the gravel bag along the U-channel was grouted by cement. The oil stain and contaminated soil 	<ol style="list-style-type: none"> There was no wastewater discharge. However, the Contractor was recommended to provide adequate treatment facilities to cater the surface run-

Inspection Date	Deficiencies	Recommendation	Status	Note / Reminder
	of the air compressor.	recommended to remove the contaminated soil and provide a drip tray to prevent oil spillage.	were removed.	off during the wet season. 2. No fugitive dust emission was observed during the site inspection. However, the Contractor was reminded to water the bare ground frequently during dry days.
15-Feb-06	1. No observation.	1. N.A.	1. N.A.	1. Unloading of cement bag was observed during the inspection. The Contractor was reminded to cover the cement bags after unloading. 2. No proper enclosure was provided for cement mixing works. The Contractor was reminded to shelter the cement mixing machine by tarpaulin sheet completely. (Action was done immediately.)
24-Feb-06	1. Accumulated water was observed in drip tray at Portion 2. 2. Wetsep and sedimentation tanks at Portion 2 were full of mud.	1. Removal of stagnant water or larvicide application should be conducted to prevent mosquito breeding. 2. The Contractor was reminded to remove the mud more frequently.	1. Larvicide was applied to the water in drip tray properly. 2. Mud and silt in sedimentation tank and Wetsep were removed.	1. Nil

Table 7-12 Summaries of Site Inspections and Recommendations

The site audit conducted by IEC was carried out on 17 February 2006 and the Contractor has undertaken appropriate actions in response to the IEC's findings.

There was no outstanding issue or deficiency for the observations arising during the weekly site inspections. However, the Contractor has been reminded to provide adequate wastewater treatment facility, increase the water spraying, provide proper enclosure for cement mixing work and cover the cement bags after unloading.

8 Waste Management Status

According to the information provided by the Contractor, the following waste materials were generated during the reporting month:

- Inert C&D materials – 104 m³; and
- General Refuse – 32.5 m³.

C&D materials were disposed of at Tuen Mun Area 38 public fill. General refuse was collected and disposed of at NENT Landfill properly. No chemical waste was produced during the reporting month. Trip ticket system was implemented and disposal records were in order on site. The Waste Management Plan was followed.

9 Future Key Issues

The construction activities for the coming three months are summarized below:

- The construction of permanent H-piles
- The loading test for the piles
- Cable / utilities diversion
- The relocation of FeCl₃ tank
- Excavation work
- Sheet piling work
- Sub-structure and superstructure construction

The upcoming EM&A schedule for the future three months is shown in Appendix 11.

10 Comments, Recommendations and Conclusions

EM&A works have been undertaken in February 2006 for the Project based on the requirements set in the EM&A Manual.

All monitoring equipments have been calibrated and all monitoring protocols have been carried out properly according to the EM&A Manual.

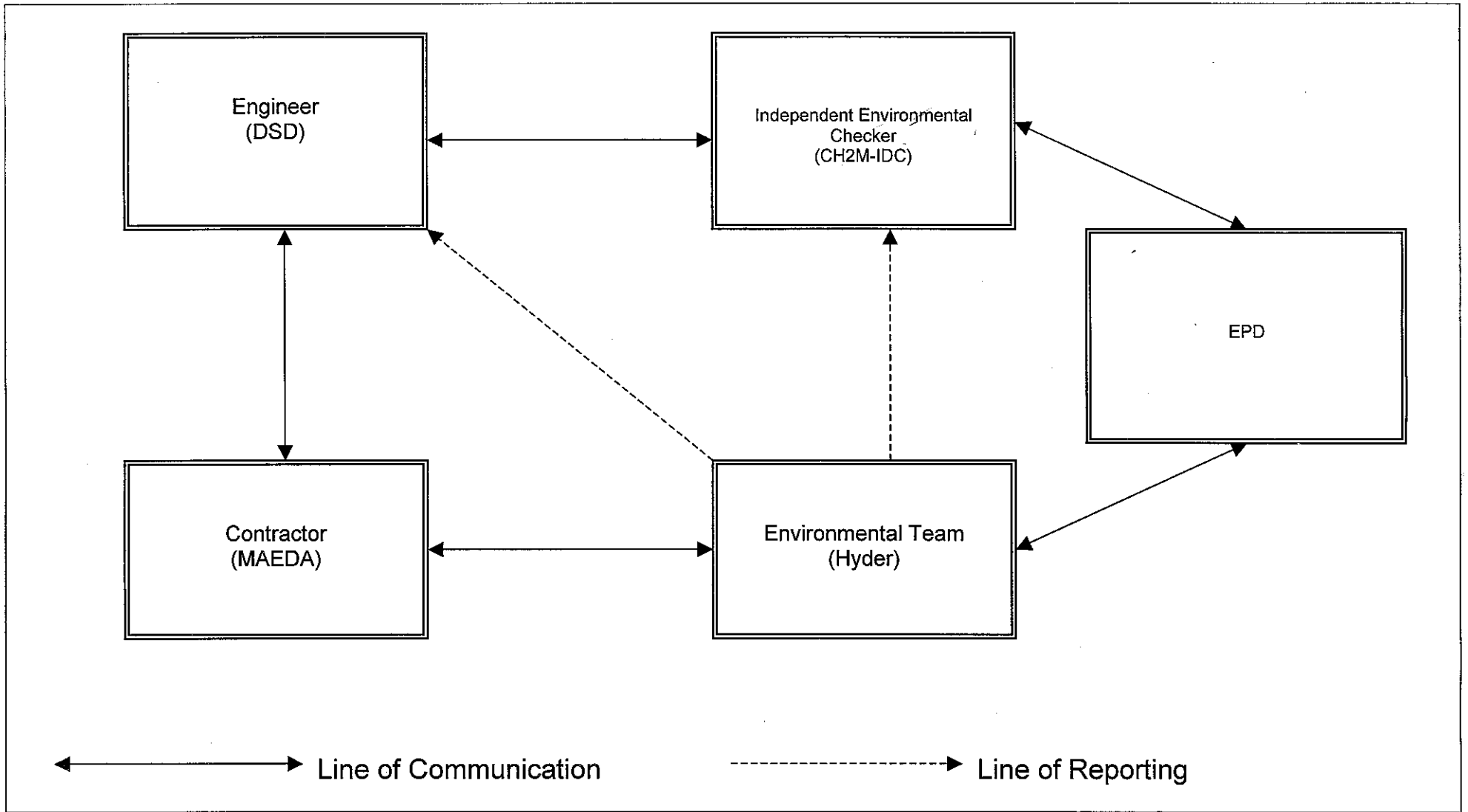
No valid exceedance of Action/Limit Level was recorded during the reporting month.



No compliant, notification of summons or successful prosecution was recorded during the reporting month.

Four weekly site inspections were carried out during the reporting month. In response to the observations raised by ET, the Contractor has undertaken follow-up actions to rectify the condition.

Appendix 1

Project Organization



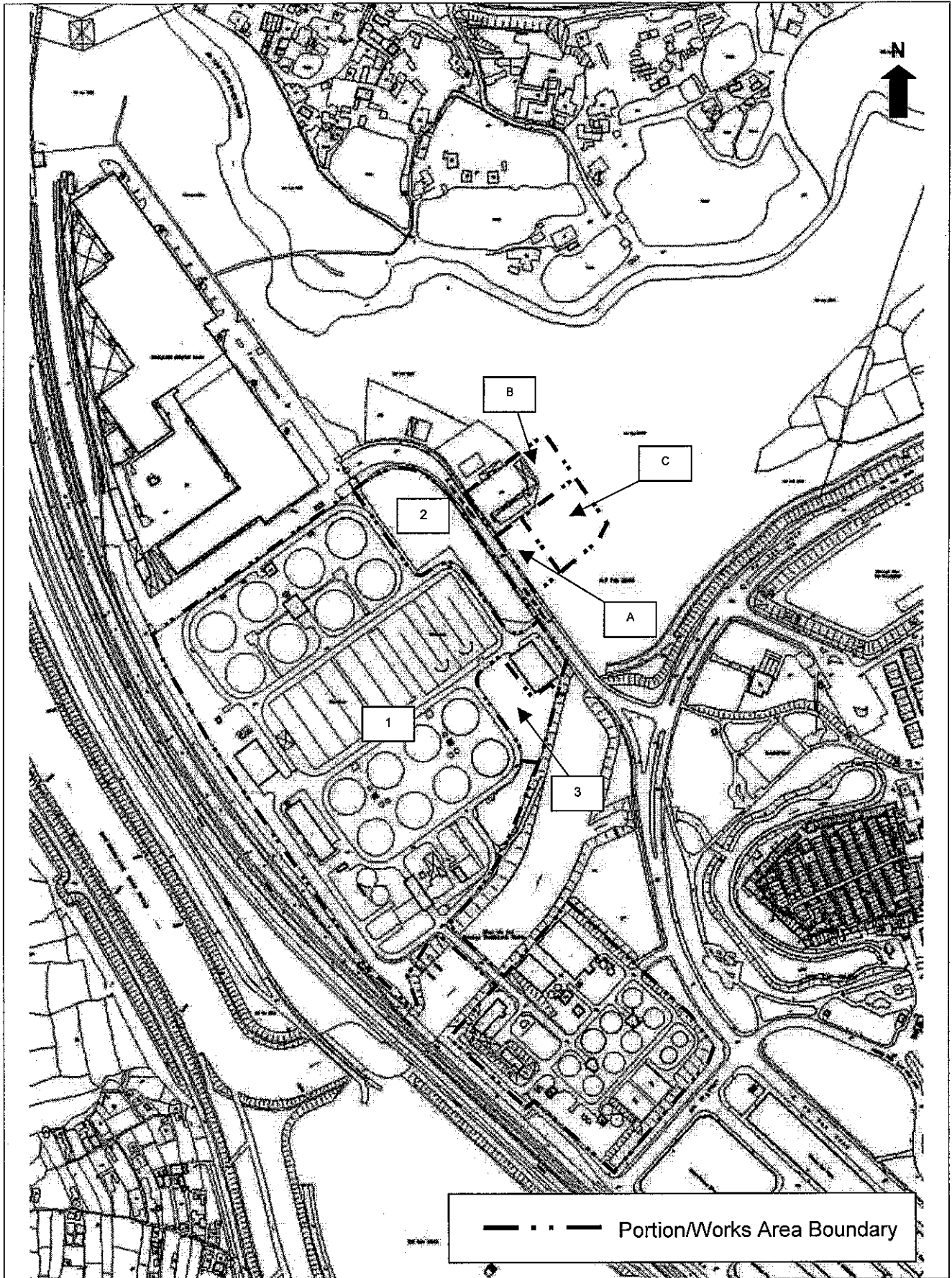
		Title Expansion of Shek Wu Hui Sewage Treatment Works – Project Organization	Date Dec 2005
			Figure N.A.
			Scale NTS

Appendix 2



Construction Programme

Appendix 3

Location of Works

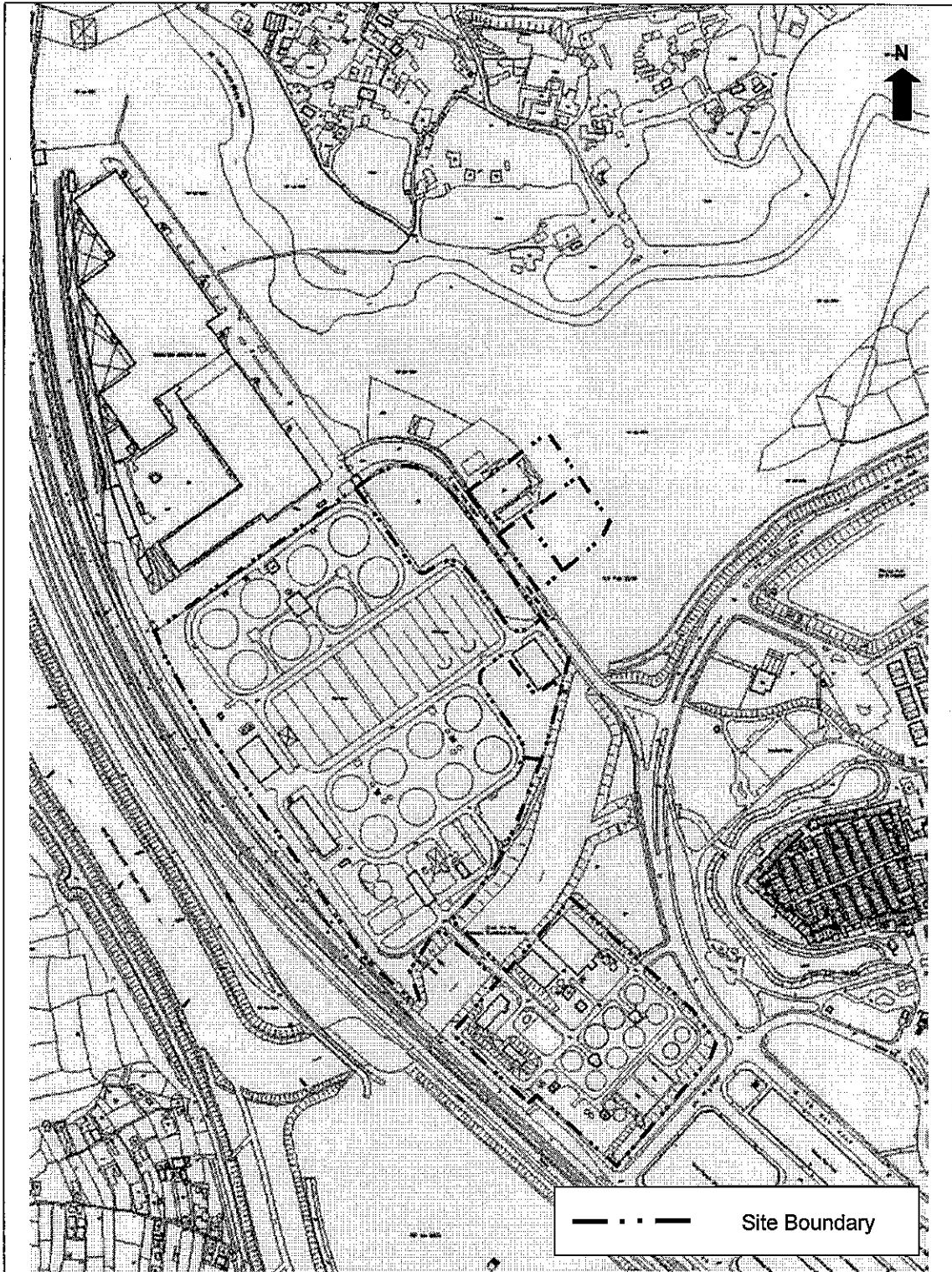


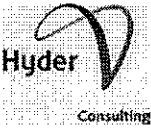
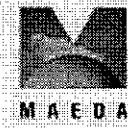
--- -- Portion/Works Area Boundary

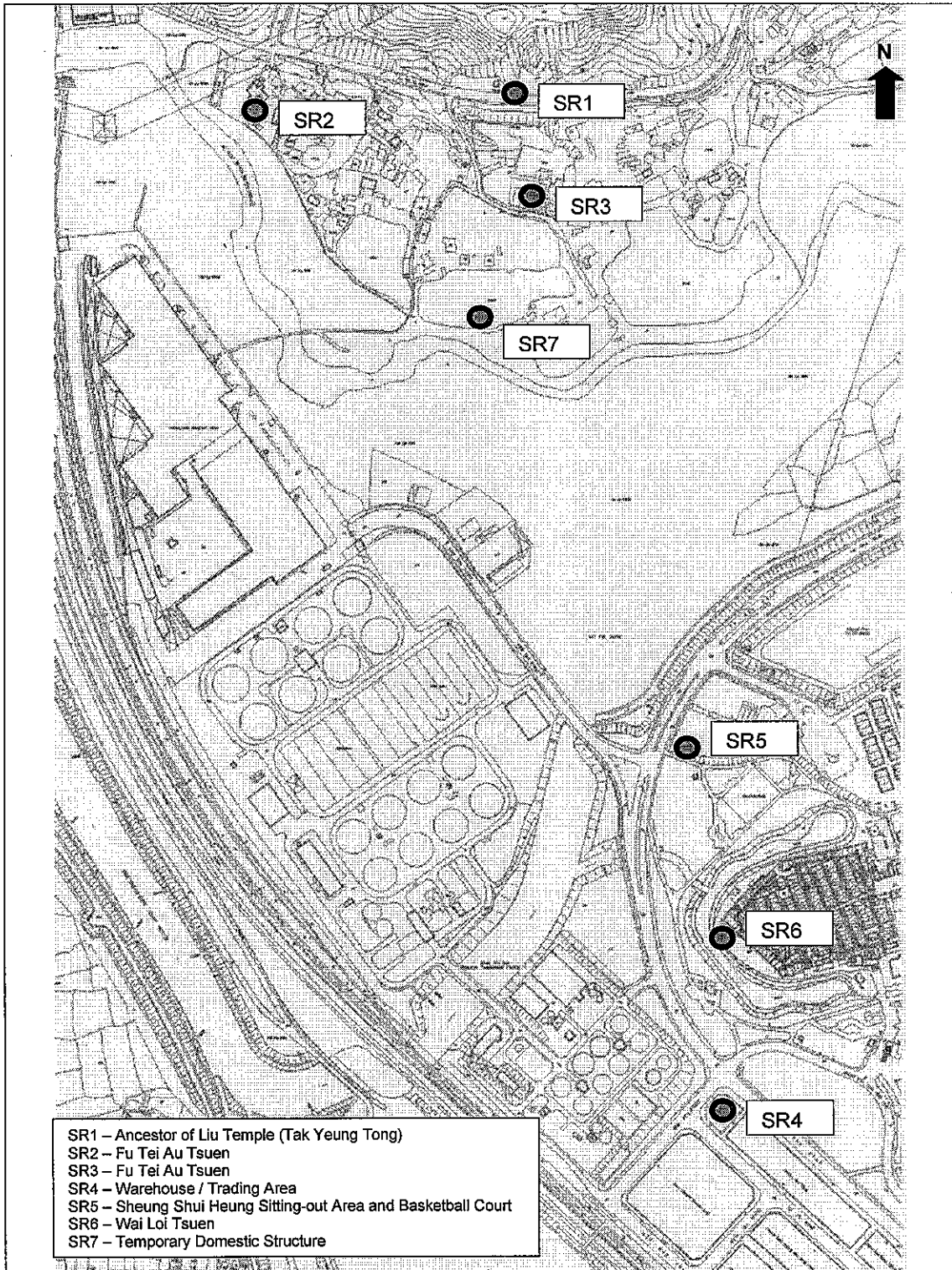
		<p>Title</p> <p>Expansion of Shek Wu Hui Sewage Treatment Works – Location of Portion/Works Area</p>	<p>Date</p> <p>Dec 2005</p>
			<p>Figure</p> <p>N.A.</p>
			<p>Scale</p> <p>NTS</p>

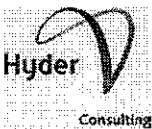

Appendix 4

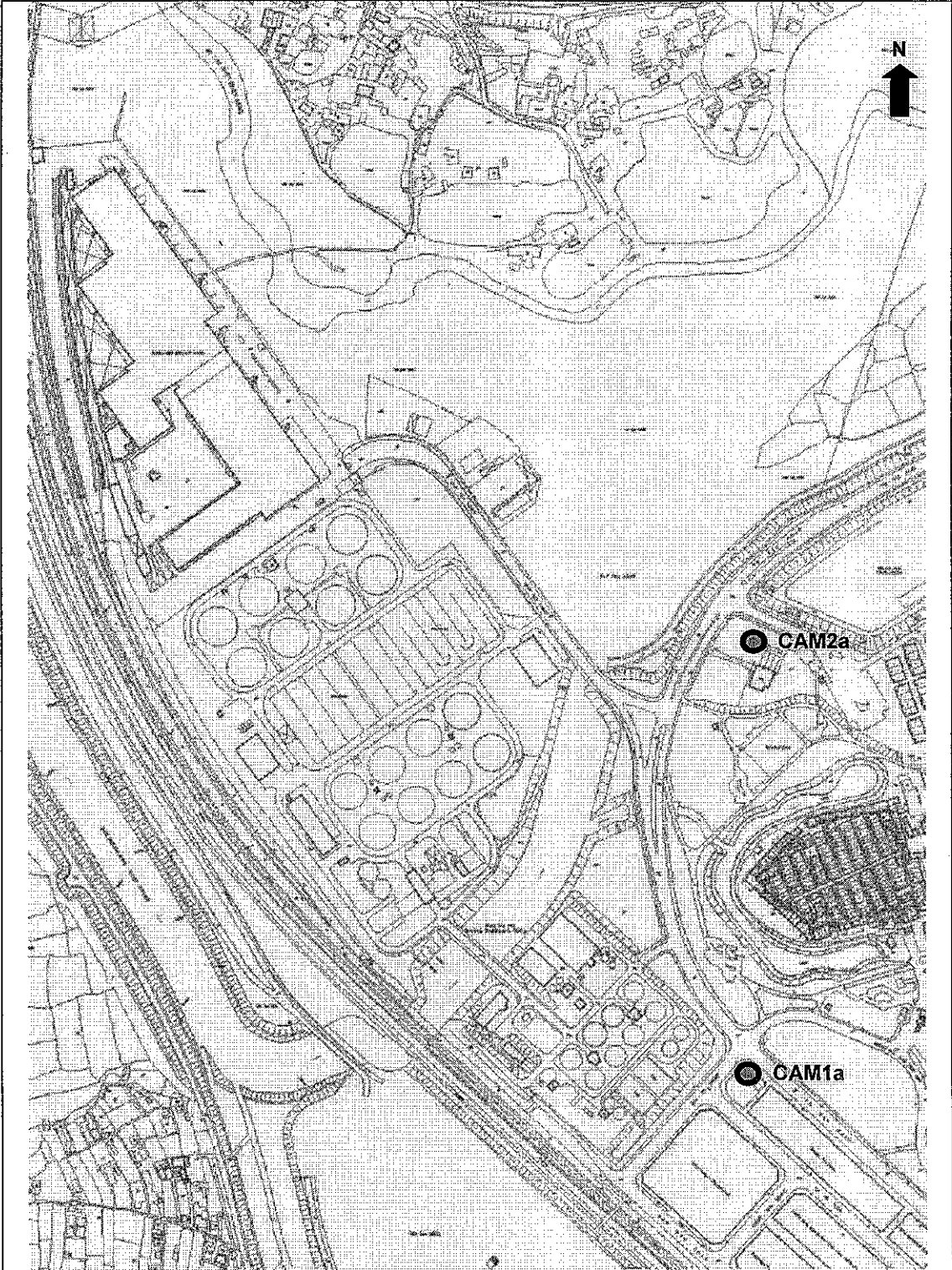
Project Area, Environmental Sensitive Receiver and
Monitoring Location

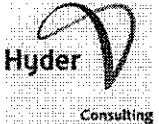



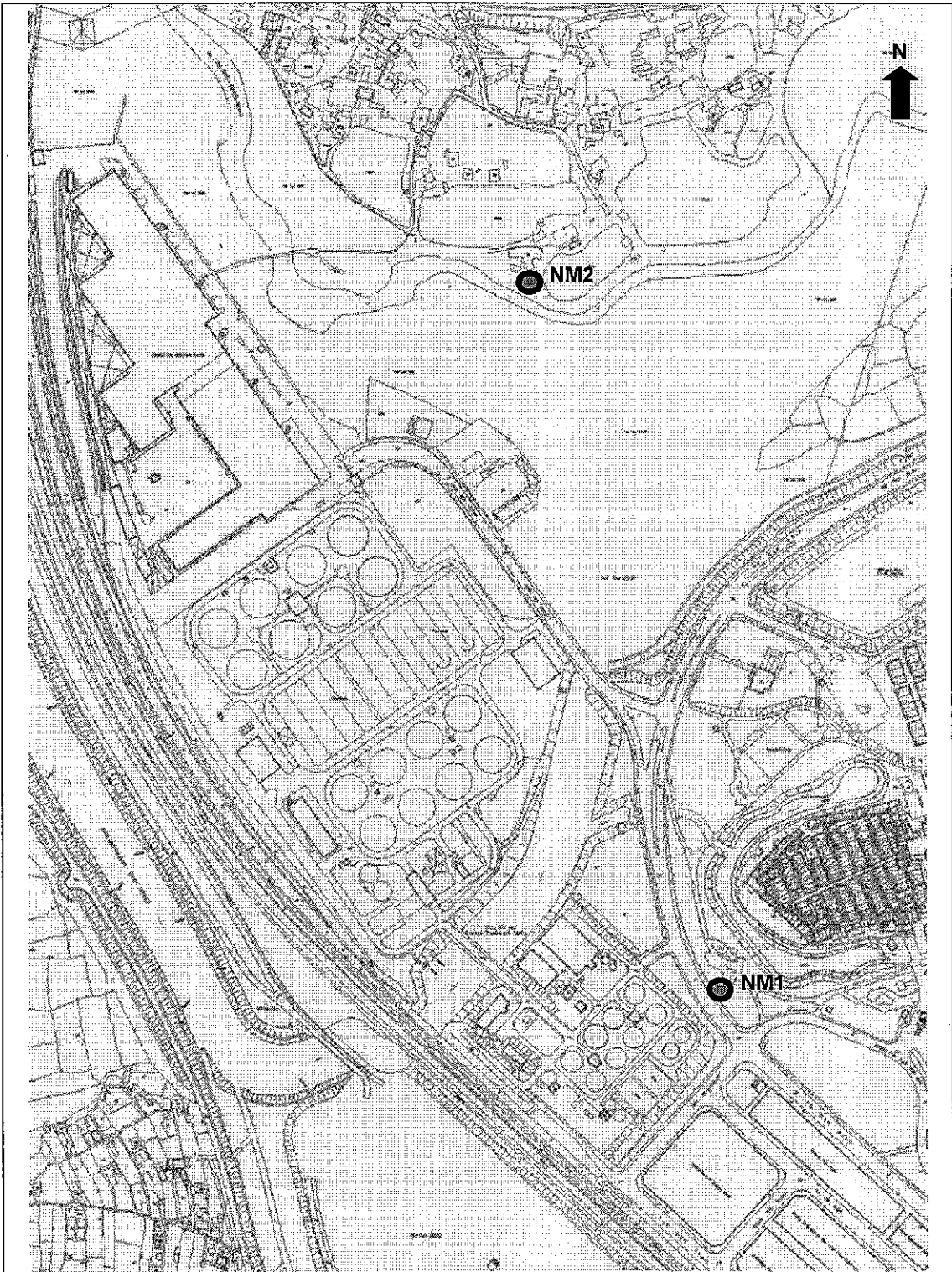
		<p>Title</p> <p>Expansion of Shek Wu Hui Sewage Treatment Works – Project Area</p>	Date	Dec 2005
			Figure	N.A.
			Scale	NTS

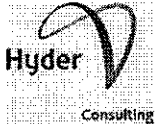



		Title Expansion of Shek Wu Hui Sewage Treatment Works – Environmental Sensitive Receiver	Date Dec 2005
			Figure N.A.
			Scale NTS



		Title Expansion of Shek Wu Hui Sewage Treatment Works – Location of Air Quality Monitoring Station	Date Dec 2005
			Figure N.A.
			Scale NTS



		Title Expansion of Shek Wu Hui Sewage Treatment Works – Location of Noise Monitoring Station	Date Dec 2005
			Figure N.A.
			Scale NTS

Appendix 5

Action and Limit Levels

Monitoring Station ID	1-hour TSP Level in ($\mu\text{g}/\text{m}^3$)		24-hour TSP Level in ($\mu\text{g}/\text{m}^3$)	
	Action Level	Limit Level	Action Level	Limit Level
CAM1a	342.7	500	203.3	260
CAM2a	340.2		201.6	

Action and Limit Levels for Air Quality

Time Period	Action Level	Limit Level
0700 – 1900 hours on normal weekdays	When one documented complaint is received	75 dB(A)

Action and Limit Levels for Noise

Appendix 6

Environmental Requirements and Implementation Status

IMPLEMENTATIONS STATUS OF MITIGATION MEASURES

Implementation Status for Air Quality Control

PP Ref#	Environmental Protection Measures	Location / Timing	Implementation Agent	Implementation Status	Follow-up Action and Final Outcome
Annex I S1.7.1	Dust mitigation measures stipulated in the <i>Air Pollution Control (construction Dust)</i> Regulation shall be incorporated to control dust emission from the Site. Notice shall be given to the authority prior to commencement of works.	Works sites / during construction period	Contractor	Properly Implemented	N/A

The section number in the Project Profile for Expansion of Shek Wu Hui Sewage Treatment works (Application No. DIR-121/2005)

Implementation Status for Water Quality Control

PP Ref#	Environmental Protection Measures	Location / Timing	Implementation Agent	Implementation Status	Follow-up Action and Final Outcome
Annex 2 S2.4.4	The practice outlined in Practice Note for Professional Persons on Construction Site Drainage, Professional Person Environmental Protection Department, 1994 (ProPECC PN 1/94) including the use of sediment traps, wheel washing facilities for vehicles leaving the site, adequate maintenance of drainage systems to prevent flooding and overflow, sewage collection and treatment, and comprehensive waste management (collection, handling, transportation, disposal) procedures should be adopted to minimize the potential water quality impact from construction site runoff and various construction activities.	Works sites / During the construction period	Contractor	Properly Implemented	N/A
Annex 2 S2.4.4	<p><i>Construction Runoff and Drainage</i></p> <ul style="list-style-type: none"> At the start of site establishment, perimeter cut-off drains to direct off-site water around the site should be constructed and internal drainage works and erosion and sedimentation control facilities implemented. Channels, earth bunds or sand bag barriers should be provided on site to direct stormwater to silt removal facilities. The design of the temporary on-site drainage system will be undertaken by the contractor prior to the commencement of construction. The design of efficient silt removal facilities should be based on the guidelines in Appendix A1 of ProPECC PN 1/94, which states that the retention time for silt/sand traps should be 5 minutes under maximum flow conditions. Sizes may vary depending upon the flow rate, but for a flow rate of $0.1\text{m}^3\text{s}^{-1}$ a sedimentation basin of 30m^3 would be required and for a flow rate of $0.5\text{m}^3\text{s}^{-1}$ the basin would be 150m^3. The detailed design of the sand/silt traps will be undertaken by the contractor prior to the commencement of construction. Ideally, construction works should be programmed to minimize surface excavation works during the rainy season (April to September). All exposed earth areas should be compacted and vegetated as soon as possible after earthworks have been completed, or alternatively, within 14 days of cessation of earthworks where practicable. If excavation of soil cannot be avoided during the rainy season, or at any time of year when rainstorms are likely, exposed slope surfaces should be covered by tarpaulin or other means. 	Works sites / During the construction period	Contractor	Properly implemented as appropriate	N/A

PP Ref#	Environmental Protection Measures	Location / Timing	Implementation Agent	Implementation Status	Follow-up Action and Final Outcome
Annex 2 S2.4.4	<p><i>Construction Runoff and Drainage (Cont'd)</i></p> <ul style="list-style-type: none"> • The overall slope of the site should be kept to a minimum to reduce the erosive potential of surface water flows, and all trafficked areas and access roads protected by coarse stone ballast. An additional advantage accruing from the use of crushed stone is the positive traction gained during prolonged periods of inclement weather and the reduction of surface sheet flows. • All drainage facilities and erosion and sediment control structures should be regularly inspected and maintained to ensure proper and efficient operation at all times and particularly following rainstorms. Deposited silt and grit should be removed regularly and disposed of by spreading evenly over stable, vegetated areas. • Measures should be taken to minimize the ingress of site drainage into excavations. If the excavation of trenches in wet periods is necessary, they should be dug and backfilled in short sections wherever practicable. Water pumped out from trenches or foundation excavations should be discharged into storm drains via silt removal facilities. • Open stockpiles of construction materials (for example, aggregates, sand and fill material) of more than 50m³ should be covered with tarpaulin or similar fabric during rainstorms. Measures should be taken to prevent the washing away of construction materials, soil, silt or debris into any drainage system. • Manholes (including newly constructed ones) should always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris being washed into the drainage system and storm runoff being directed into foul sewers. • Precautions to be taken at any time of year when rainstorms are likely, actions to be taken when a rainstorm is imminent or forecasted, and actions to be taken during or after rainstorms are summarized in Appendix A2 of ProPECC PN 1/94. Particular attention should be paid to the control of silty surface runoff during storms events, especially for areas located near steep slopes. 	Works sites / During the construction period	Contractor	<ul style="list-style-type: none"> • The cap of water barrier on site was found missing on 3 Feb 06. • Broken gravel bags were found in the U channels close to manhole which was close to the slaughter house on 6 Feb 06. • Wetsep and sedimentation tanks at Portion 2 were full of mud on 24 Feb 06. 	<ul style="list-style-type: none"> • The inlet of water barrier was sealed. • The gravel bag in the U-channels was removed and the gravel bag along the U-channel was grouted by cement. • Mud and silt in sedimentation tank and wetsep has been removed.

PP Ref#	Environmental Protection Measures	Location / Timing	Implementation Agent	Implementation Status	Follow-up Action and Final Outcome
Annex 2 S2.4.4	<p><i>Construction Runoff and Drainage</i></p> <ul style="list-style-type: none"> All vehicles and plant should be cleaned before leaving a construction site to ensure no earth, mud, debris and the like is deposited by them on roads. An adequately designed and sited wheel washing bay should be provided at every site exits and wash-water should have sand and silt settled out and removed at least on a weekly basis to ensure the continued efficiency of the process. The section of access road leading to, and exiting from, the wheel-wash bay to the public road should be paved with sufficient backfill toward the wheel-wash bay to prevent vehicle tracking of soil and silty water to public roads and drains. On-site drainage system should be equipped with oil interceptors to separate oil/fuel from contaminated storm water. 	Works site / During the construction period	Contractor	Properly implemented as appropriate	N/A
Annex 2 S2.4.4	<p><i>General Construction Activities</i></p> <ul style="list-style-type: none"> Construction solid waste, debris and rubbish on site should be collected, handled and disposed of properly to avoid water quality impacts. All fuel tanks and storage areas should be provided with locks and sited on sealed areas, within bunds of a capacity equal to 100% of the storage capacity of the largest tank to prevent spilled fuel oils from reaching water sensitive receivers nearby. 	Works site / During the construction period	Contractor	Properly Implemented as appropriate	N/A
Annex 2 S2.4.4	<p><i>Sewage from Construction Workforce</i></p> <ul style="list-style-type: none"> Sewage from construction workforce should be handled by portable chemical toilets or sewage holding tanks with the sewage regularly collected by a reputable sewage collector for disposal at, for example, SWHSTW. Sewage from on-site toilets should be diverted to and stored within sewage holding tanks for later disposal. 	Works site / During the construction period	Contractor	Properly implemented	N/A

The section number in the Project Profile for Expansion of Shek Wu Hui Sewage Treatment works (Application No. DIR-121/2005)

Implementation Status for Waste Management

PP Ref#	Environmental Protection Measures	Location / Timing	Implementation Agent	Implementation Status	Follow-up Action and Final Outcome
Annex 3 S3.5.1	<p><i>Waste Reduction Measures of Construction Stage</i></p> <ul style="list-style-type: none"> • Measures recommended in the ETWB TCW No. 15/2003 should be followed to require the contractor to prepare and implement an enhanced Waste Management Plan (WMP) to encourage on-site sorting of C&D materials and to minimize their generation during the course of construction. • For the demolition works, the contractor shall submit a method statement for the works as part of the WMP. The Contractor shall include in the method statement the sequence of demolition and the work programme to facilitate effective recovery of reusable and/or recyclable portions of the C&D materials at the earliest stage, so as to minimise the need for subsequent sorting. • Segregation and storage of different types of waste in different containers, skips or stockpiles to enhance reuse or recycling of materials and their proper disposal. • Separate labelled bins shall be provided to segregate aluminium cans from other general refuse generated by the work force, and to encourage collection of by individual collectors. • Any unused chemicals or those with remaining functional capacity shall be recycled. • Maximising the use of reusable steel formwork to reduce the amount of C&D material. • Prior to disposal of C&D waste, it is recommended that wood, steel and other metals shall be separated for re-use and / or recycling to minimise the quality of waste to be disposed of to landfill. • Proper storage and site practices to minimise the potential for damage or contamination of construction materials. • Plan and stock construction materials carefully to minimise amount of waste generated and avoid unnecessary generation of waste. • Minimize over ordering of concrete, mortars and cement grout by doing careful check before ordering. 	Work site / During the construction period	Contractor	Properly implemented as appropriate	N/A

PP Ref#	Environmental Protection Measures	Location / Timing	Implementation Agent	Implementation Status	Follow-up Action and Final Outcome
Annex 3 S3.5.2 – S3.5.5	<p><i>Good Site Practices</i></p> <ul style="list-style-type: none"> • Nomination of approved personnel, such as a site manager, to be responsible for good site practices, and making arrangements for collection of all wastes generated at the site and effective disposal to an appropriate facility. • Training of site personnel in proper waste management and chemical waste handling procedures; • Provision of sufficient waste disposal points and regular collection for disposal; • Appropriate measures to minimise windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers; • Regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors; • A Waste Management Plan should be prepared and should be submitted to the engineer for approval; and • A recording system for the amount of wastes generated, recycled and disposed (including the disposal sites) should be proposed. • In order to monitor the disposal of C&D material at landfills and public filling facilities, as appropriate, and to control fly tipping, a trip-ticket system should be included as one of the contractual requirements to be implemented by an Environmental Team undertaking the Environmental Monitoring and Audit work. The measures recommended in ETWB TCW No. 31/2004 should be followed. 	Work site / During the construction period	Contractor	<ul style="list-style-type: none"> • Oil leakage from drilling rig was observed on site on 3 Feb 06. • It was observed that there was oil stain next to the diesel cap of the air compressor on 6 Feb 06. • Accumulated water was observed in drip tray at Portion 2 on 24 Feb 06. 	<ul style="list-style-type: none"> • The plant was checked and was filled before operation. • The oil stain and contaminated soil were removed. • Larvicide has been applied to the water in drip tray properly.
Annex 3 S3.5.6	<p><i>General Refuse</i></p> <ul style="list-style-type: none"> • General refuse should be stored in enclosed bins or compaction units separate from C&D material. A reputable waste collector should be employed by the contractor to remove general refuse from the site, separately from C&D material. An enclosed and covered area is preferred to reduce the occurrence of 'wind blown' light material; 	Work site / During the construction period	Contractor	Properly Implemented	N/A

PP Ref#	Environmental Protection Measures	Location / Timing	Implementation Agent	Implementation Status	Follow-up Action and Final Outcome
Annex 3 S3.5.7	<p><i>Construction and Demolition Material</i></p> <ul style="list-style-type: none"> The C&D material generated from the site formation and demolition works should be sorted on-site into inert C&D material (that is, public fill) and C&D waste. In order to minimise the impact resulting from collection and transportation of C&D material for off-site disposal, the excavated material comprising fill material should be reused on-site as backfilling material as far as practicable. C&D waste, such as wood, plastic, steel and other metals should be reused or recycled and, as a last resort, disposed of to landfill. A suitable area should be designated within the site for temporary stockpiling of C&D material and to facilitate the sorting process. 	Work site / During the construction period	Contractor	Properly Implemented	N/A
Annex 3 S3.5.8	<p><i>Chemical Wastes</i></p> <ul style="list-style-type: none"> When chemical wastes are produced at the construction site, the Contractor would be required to register with the EPD as a Chemical Waste Producer and to follow the requirements stated in the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. Good quality containers compatible with the chemical wastes should be used. Appropriate labels should be securely attached on each chemical waste container indicating the chemical characteristics of the chemical waste, such as explosives, flammable, oxidizing, irritant, toxic, harmful, corrosive, etc. The Contractor shall use a licensed waste collector to transport and dispose of the chemical wastes in accordance with the Waste Disposal (Chemical Waste) (General) Regulation. 	Work site / During the construction period	Contractor	Properly Implemented	N/A

The section number in the Project Profile for Expansion of Shek Wu Hui Sewage Treatment works (Application No. DIR-121/2005)

Implementation Status for Noise Control

PP Ref#	Environmental Protection Measures	Location / Timing	Implementation Agent	Implementation Status	Follow-up Action and Final Outcome
Annex 4 S4.7.1	Use of quiet PME	Work sites / During the construction period	Contractor	Properly Implemented	N/A
Annex 4 S4.7.3	<p><i>Good Site Practice</i></p> <ul style="list-style-type: none"> • Only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction phase; • Silencers or mufflers on construction equipment should be utilised, if found necessary, to further reduce noise, and should be properly maintained during the construction phase; • Mobile plant should be sited as far away from NSRs as possible; • Machines and plant (such as trucks) that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum; • Plant known to emit noise strongly in one direction, should, where possible, be orientated so that the noise is directed away from nearby NSRs; and • Material stockpiles and other structures should be effectively utilised, wherever practicable, in screening noise from on-site construction activities. 	Work sites / During the construction period	Contractor	Properly Implemented	N/A

The section number in the Project Profile for Expansion of Shek Wu Hui Sewage Treatment works (Application No. DIR-121/2005)

Appendix 7

Calibration Records

Annex 2 High Volume Air Sampler Calibration Worksheet

Project Title: Expansion of Shek Wu Hui Sewage Treatment Works
 Monitoring Location: Sewage Pumping Station at j/o San Po Street and Po Wan Road (CAM1a)
 Date: 14-Jan-06
 Time: 09:30

Sampler Model:	GBM2000H1
Calibrator Orifice no.:	517N
Slope (m):	2.02844
Intercept (b):	-0.02391
Correction coeff. (r):	0.99999
Serial No.:	1101

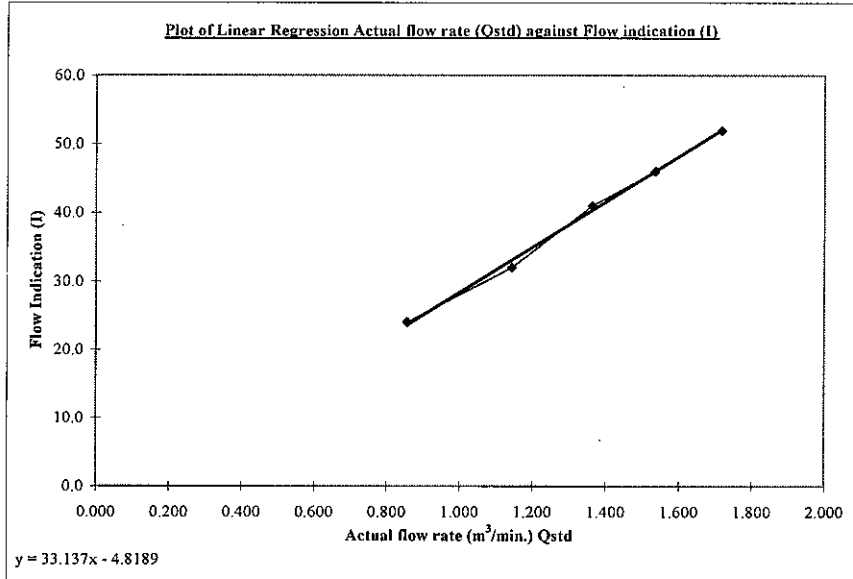
$$\text{Flow (corrected)} = \sqrt{H \times \frac{Pa}{Pstd} \times \frac{Tstd}{Ta}}$$

Standard pressure (mmHg) Pstd:	760.0
Standard temp. (K) Tstd:	297.18
Calibration pressure (mmHg) Pa:	762.1
Calibration temp. (K) Ta:	294.9

$$Qstd = \frac{1}{m} \times \left(\sqrt{H \times \frac{Pa}{Pstd} \times \frac{Tstd}{Ta}} - b \right)$$

Sample no.	Pressure Drop (H), inch	Flow (corrected), m ³ /min	Actual flow rate (Qstd), m ³ /min	Flow indication (I), arbitrary
1	11.8	3.458	1.716	52.0
2	9.4	3.086	1.533	46.0
3	7.4	2.738	1.362	41.0
4	5.2	2.295	1.143	32.0
5	2.9	1.714	0.857	24.0

Correlation Coefficient : 0.9982



Remark
 Qstd Range 0.6 - 1.7
 1HPa = 0.750062 mmHg

Calibrated by: **Kenneth H.C. Choi**
 (*[Signature]*)

Date: 14/01/06

Checked by: **Adi Lee**
 (*[Signature]*)

Date: 16/1/06

Annex 2 High Volume Air Sampler Calibration Worksheet

Project Title: Expansion of Shek Wu Hui Sewage Treatment Works
Monitoring Location: Flood Balancing Pumping Station at Po Wan Road near Wai Loi Tsuen (CAM2a)
Date: 14-Jan-06
Time: 10:00

Sampler Model:	GBM2000H1
Calibrator Orifice no.:	517N
Slope (m):	2.02844
Intercept (b):	-0.02391
Correction coeff. (r):	0.99999
Serial No.:	0134

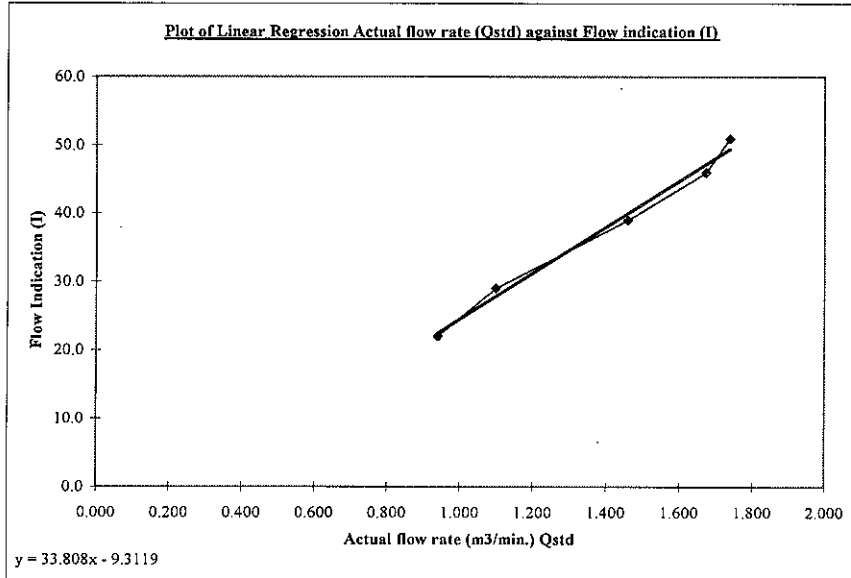
$$\text{Flow(corrected)} = \sqrt{H \times \frac{Pa}{Pstd} \times \frac{Tstd}{Ta}}$$

Standard pressure (mmHg) Pstd:	760.0
Standard temp. (K) Tstd:	297.18
Calibration pressure (mmHg) Pa:	762.1
Calibration temp. (K) Ta:	294.9

$$Qstd = \frac{1}{m} \times \left(\sqrt{H \times \frac{Pa}{Pstd} \times \frac{Tstd}{Ta}} - b \right)$$

Sample no.	Pressure Drop (H), inch	Flow (corrected), m ³ /min	Actual flow rate (Qstd), m ³ /min	Flow indication (I), arbitrary
1	12.1	3.502	1.738	51.0
2	11.2	3.369	1.673	46.0
3	8.5	2.935	1.459	39.0
4	4.8	2.205	1.099	29.0
5	3.5	1.883	0.940	22.0

Correlation Coefficient : 0.9943



Remark
 Qstd Range 0.6 - 1.7
 1HPa = 0.750062 mmHg

Calibrated by: **Kenneth H.C. Choi**
 (*KHC*)

Date: 14/01/06

Checked by: **Adi Lee**
 (*ALS*)

Date: 15/1/06



TISCH ENVIRONMENTAL, INC.
 145 SOUTH MIAMI AVE.
 VILLAGE OF CLEVELAND, OH 45002
 513.467.9000
 877.263.7610 TOLL FREE
 513.467.9009 FAX
 WWW.TISCH-ENV.COM

AIR POLLUTION MONITORING EQUIPMENT

ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5025A

Date - May 16, 2005 Roots-meter S/N 9833620 Ta (K) - 294
 Operator Tisch Orifice I.D. - 517N Pa (mm) - 753.62

PLATE OR Run #	VOLUME START (m3)	VOLUME STOP (m3)	DIFF VOLUME (m3)	DIFF TIME (min)	METER	ORFICE
					DIFF Hg (mm)	DIFF H2O (in.)
1	NA	NA	1.00	1.4090	3.2	2.00
2	NA	NA	1.00	0.9950	6.3	4.00
3	NA	NA	1.00	0.8910	7.8	5.00
4	NA	NA	1.00	0.8490	8.6	5.50
5	NA	NA	1.00	0.7010	12.6	8.00

DATA TABULATION

Vstd	(x axis) Qstd	(y axis)	Va	(x axis) Qa	(y axis)
1.0008	0.7103	1.4178	0.9957	0.7067	0.8833
0.9967	1.0017	2.0051	0.9916	0.9966	1.2492
0.9946	1.1163	2.2418	0.9895	1.1106	1.3966
0.9936	1.1703	2.3512	0.9886	1.1644	1.4648
0.9882	1.4098	2.8356	0.9832	1.4026	1.7666
Qstd slope (m) = 2.02844			Qa slope (m) = 1.27017		
intercept (b) = -0.02391			intercept (b) = -0.01489		
coefficient (r) = 0.99999			coefficient (r) = 0.99999		

y axis = SQRT[H2O (Pa/760) (298/Ta)]

y axis = SQRT[H2O (Ta/Pa)]

CALCULATIONS

Vstd = Diff. Vol [(Pa-Diff. Hg)/760] (298/Ta)
 Qstd = Vstd/Time

Va = Diff Vol [(Pa-Diff Hg)/Pa]
 Qa = Va/Time

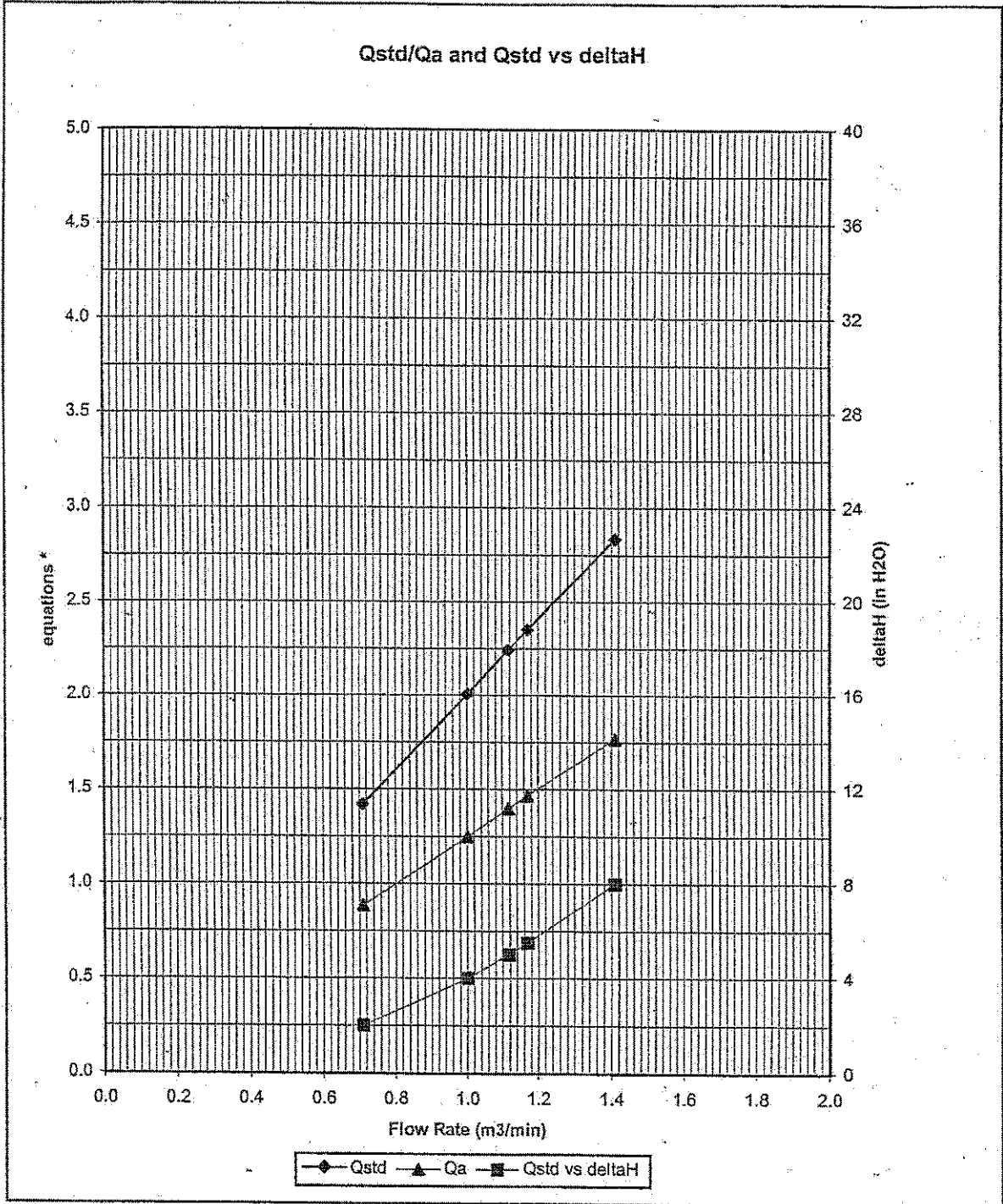
For subsequent flow rate calculations:

Qstd = 1/m{ [SQRT(H2O (Pa/760) (298/Ta))] - b }
 Qa = 1/m{ [SQRT H2O (Ta/Pa)] - b }



TISCH ENVIRONMENTAL, INC.
 145 SOUTH MIAMI AVE.
 VILLAGE OF CLEVELAND, OH 45002
 513.467.9000
 877.263.7610 TOLL FREE
 513.467.9009 FAX
 WWW.TISCH-ENV.COM

AIR POLLUTION MONITORING EQUIPMENT



* y-axis equations:

Qstd series:
$$\sqrt{\Delta H \left(\frac{P_a}{P_{std}} \right) \left(\frac{T_{std}}{T_a} \right)}$$

Qa series:
$$\sqrt{\Delta H (T_a / P_a)}$$

517N



Calibration Certificate

Certificate No. **55747**

Page 1 of 2 Pages

Customer : Hyder Consulting Limited

Address : 47/F., Hopewell Centre, 183 Queen's Road East, Wan Chai, Hong Kong

Order No. : Q52108

Date of receipt : 7-Dec-05

Item Tested

Description : Sound Level Calibrator

Manufacturer : B&K

Model : Type 4231

Serial No. : 1770806

Test Conditions

Date of Test : 15-Dec-05

Supply Voltage : --

Ambient Temperature : $(23 \pm 3)^{\circ}\text{C}$

Relative Humidity : $(50 \pm 25) \%$

Test Specifications

Calibration check according to customer's requirement.

Calibration procedure : F21, Z02.

Test Results

All results were within the manufacturer's, IEC 942 Class 1 specification.

The results are shown in the attached page(s).

Test equipment used:

<u>Equipment No.</u>	<u>Cert. No.</u>	<u>Due Date</u>	<u>Traceable to</u>
S014	53024	7-Jul-06	PRC-NIM
S024	S41431	22-May-06	PRC-NIM
S041	53972	26-Aug-06	HKGSL

The values given in this Calibration Certificate only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance for the equipment long term drift, variations with environmental changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Hong Kong Calibration Ltd. shall not be liable for any loss or damage resulting from the use of the equipment.

The test equipment used for calibration are traceable to International System of Units (SI).

The test results apply to the above Unit-Under-Test only

Calibrated by : 

Approved by : 
Dorothy Cheuk

Date: 15-Dec-05

This Certificate is issued by:

Hong Kong Calibration Ltd.

Unit 8B, 24/F., Well Fung Industrial Centre, No. 58-76, Ta Chuen Ping Street, Kwai Chung, NT, Hong Kong.

Tel: 2425 8801 Fax: 2425 8646



Calibration Certificate

Certificate No. 55747

Page 2 of 2 Pages

Results :

1. Level Accuracy

UUT Nominal Value (dB)	Measured Value (dB)	IEC 942 Class 1 Spec.
94	94.0	± 0.3 dB
114	114.0	

Uncertainty : ± 0.2 dB

2. Frequency

UUT Nominal Value	Measured Value	IEC 942 Class 1 Spec.
1 kHz	1.005 kHz	± 2 %

Uncertainty : ± 3.6 x 10⁻⁶

3. Level Stability : 0.0 dB

IEC 942 Class 1 Spec. : ± 0.1 dB

Uncertainty : ± 0.01 dB

4. Total Harmonic Distortion : < 0.4 %

IEC 942 Class 1 Spec. : < 3 %

Uncertainty : ± 2.3 % of reading

Remark : 1. UUT : Unit-Under-Test

2. The above measured values are the mean of 3 measurements.

3. The uncertainty claimed is for a confidence probability of not less than 95%.

4. Atmospheric Pressure : 1 004 hPa.

----- END -----



CERTIFICATE OF CALIBRATION

Certificate No. : 2KS051204-1

Page 1 of 2

Calibration of :

Description :	Sound Level Meter	,	Microphone
Manufacture :	Brüel & Kjær		
Type No. :	2238	,	4188
Serial No. :	2285726	,	2462195

Client :

Hyder Consulting Limited
47/F, Hopewell Centre,
183 Queen's Road East,
Wanchai, Hong Kong.

Calibration Conditions :

Air Temperature :	23.0	°C
Air Pressure :	101.1	kPa
Relative Humidity :	61	%

Test Specifications :

The Sound Level Meter has been calibrated in accordance with the requirements as specified in IEC 60651 and IEC 60804 type 1, and vendor specific procedures.

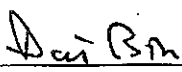
The measurements has been performed with the assistance of :
Brüel & Kjær's Sound Level Meter Calibration System B&K 9600 CAL2238A, Ver.25.10.1999
The standard(s) and instrument(s) used in the calibration are traceable to international standard and are calibrated on a schedule which is adjusted to maintain the required accuracy level.

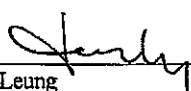
Test Result :

A list of the performed (sub) tests is stated on page 2 of this certificate. Actual Measurement are documented on worksheet.

Date of Calibration : 08 December, 2005
Calibrated By :

Certificate issued : 09 December, 2005
Approved signatory :


Dai Bin


Jacky Leung

Reproduction of the complete certificate is allowed. Parts of the certificate may only be reproduced after written permission.

CERTIFICATE OF CALIBRATION

Certificate No. : 2KS051204-1

Page 2 of 2

Results :

List of performed (sub) test with test status:

“OK” Means the result of the (sub)test is Inside the tolerances stated in the test specifications.

“ - ” Means the result of the (sub)test is Outside these tolerances.

Test :	Subtest :	Status :
Noise	A	OK
Noise	C	OK
Noise	Lin	OK
Frequency Weighting	A	OK
Frequency Weighting	C	OK
Frequency Weighting	Lin	OK
Level Range Control	1000 Hz	OK
Linearity Range	SPL 10dB 4000 Hz	OK
Linearity Range	SPL 1dB 1000 Hz	OK
Linearity Range	Leq	OK
Linearity Range	SEL	OK
RMS Detector	CF 3	OK
RMS Detector	CF 5	OK
RMS Detector	CF 10	OK
RMS Detector	Symmetry	OK
Time Weighting	Difference Indication	OK
Time Weighting	Single Burst FAST	OK
Time Weighting	Single Burst SLOW	OK
Time Weighting	Single Burst IMPULSE	OK
Time Weighting	Repetitive Burst	OK
Time Weighting	Peak	OK
Time Averaging		OK
Pulse Range		OK
Overload	SPL	OK
Overload	SEL	OK
Acoustic Response	A	OK
Acoustic Response	Lin	OK

Calibration Equipment :

Description :	Make & Model :	Serial No. :	Last Cal. Date :	Traceable to :
Brüel & Kjør's Sound Level Meter Calibration System				B&K 9600 CAL2238A, Ver.25.10.1999
Digital Multi-meter	Datron 1281	27361	05 Oct, 2005	HKSCS (HOKLAS)
Sine/Noise Generator	B&K 1049	1314978	Test	B&K Conformance
Test Waveform Generator	B&K 5918	1482949	Test	B&K Conformance
Acoustical Calibrator	B&K 4226	1551627	11 Jul, 2005	NPL via B&K (UKAS)

Calibrated By : *Ant Row*
Date : 08 December, 2005

Checked By : *Janly*
Date : 09 December, 2005



CERTIFICATE OF CALIBRATION

Certificate No. : 2KS050510-1

Page 1 of 2

Calibration of :

Description :	Sound Level Meter	,	Microphone
Manufacture :	Brüel & Kjær		
Type No. :	2238	,	4188
Serial No. :	2448529	,	2461996

Client :

Hyder Consulting Limited
47/F, Hopewell Centre,
183 Queen's Road East,
Wanchai, Hong Kong.

Calibration Conditions :

Air Temperature :	23.0	°C
Air Pressure :	101.1	kPa
Relative Humidity :	61	%

Test Specifications :

The Sound Level Meter has been calibrated in accordance with the requirements as specified in IEC 60651 and IEC 60804 type 1, and vendor specific procedures.

The measurements has been performed with the assistance of :

Brüel & Kjær's Sound Level Meter Calibration System B&K 9600 CAL2238A, Ver.25.10.1999
The standard(s) and instrument(s) used in the calibration are traceable to international standard and are calibrated on a schedule which is adjusted to maintain the required accuracy level.

Test Result :

A list of the performed (sub) tests is stated on page 2 of this certificate. Actual Measurement are documented on worksheet.

Date of Calibration : 30 May, 2005
Calibrated By :


Fox Ng

Certificate issued : 31 May, 2005
Approved signatory :


Jacky Leung

Reproduction of the complete certificate is allowed. Parts of the certificate may only be reproduced after written permission.

CERTIFICATE OF CALIBRATION

Certificate No. : 2KS050510-1

Page 2 of 2

Results :

List of performed (sub) test with test status:

"OK" Means the result of the (sub)test is Inside the tolerances stated in the test specifications.

"-" Means the result of the (sub)test is Outside these tolerances.

Test :	Subtest :	Status :
Noise	A	OK
Noise	C	OK
Noise	Lin	OK
Frequency Weighting	A	OK
Frequency Weighting	C	OK
Frequency Weighting	Lin	OK
Level Range Control	1000 Hz	OK
Linearity Range	SPL 10dB 4000 Hz	OK
Linearity Range	SPL 1dB 1000 Hz	OK
Linearity Range	Leq	OK
Linearity Range	SEL	OK
RMS Detector	CF 3	OK
RMS Detector	CF 5	OK
RMS Detector	CF 10	OK
RMS Detector	Symmetry	OK
Time Weighting	Difference Indication	OK
Time Weighting	Single Burst FAST	OK
Time Weighting	Single Burst SLOW	OK
Time Weighting	Single Burst IMPULSE	OK
Time Weighting	Repetitive Burst	OK
Time Weighting	Peak	OK
Time Averaging		OK
Pulse Range		OK
Overload	SPL	OK
Overload	SEL	OK
Acoustic Response	A	OK
Acoustic Response	Lin	OK

Calibration Equipment :

Brüel & Kjær's Sound Level Meter Calibration System B&K 9600 CAL2238A, Ver.25.10.1999				
Description :	Make & Model :	Serial No. :	Last Cal. Date :	Traceable to :
Digital Multi-meter	Datron 1281	27361	28 Sep, 2004	HKSCS (HOKLAS)
Sine/Noise Generator	B&K 1049	1314978	Test	B&K Conformance
Test Waveform Generator	B&K 5918	1482949	Test	B&K Conformance
Acoustical Calibrator	B&K 4226	1551627	22 Jun, 2004	NPL via B&K (UKAS)

Calibrated By : *Rox Ng*
Date : 30 May, 2005

Checked By : *Janey*
Date : 31 May, 2005

Appendix 8

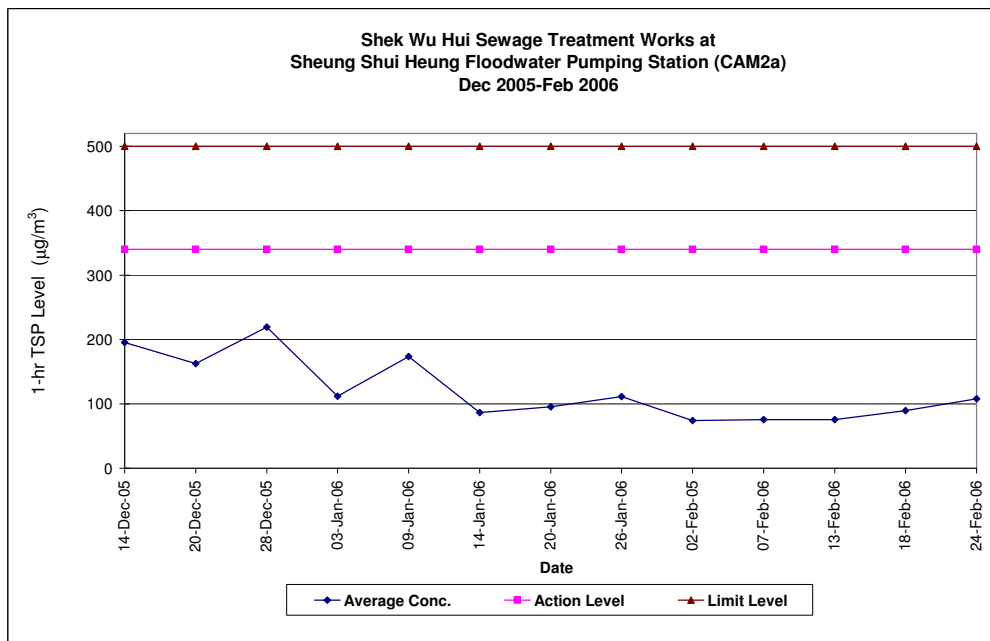
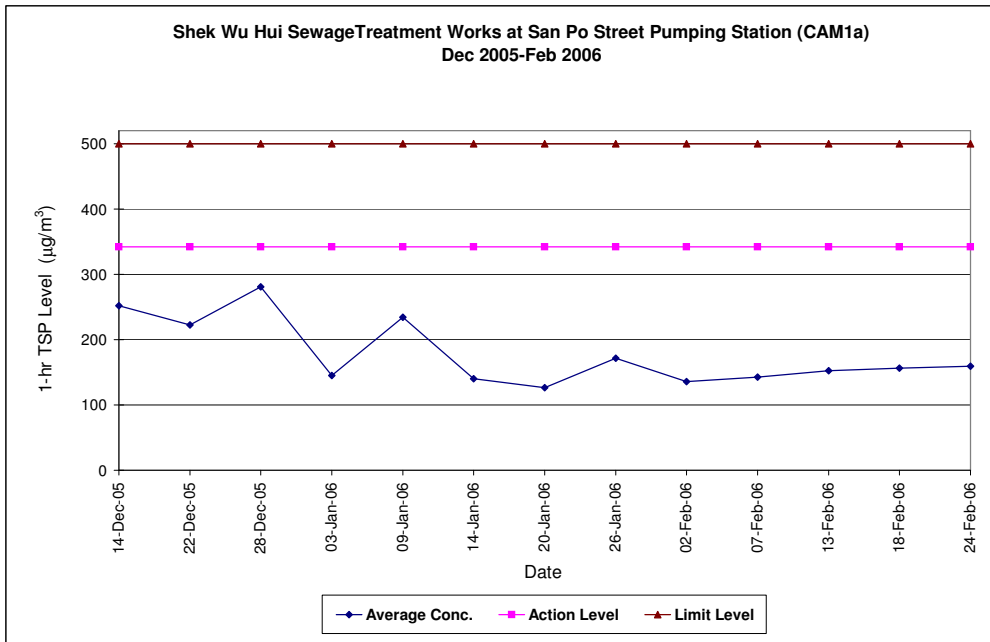
Monitoring Results and Graphical Plots

Shek Wu Hui Sewage Treatment Works

Air Quality Impact Monitoring Results (1-Hour TSP)

Location	Monitoring Date	Weather Conditions	Wind Speed with Direction (m/s)	Temp (oC)	Timer-I	Timer-F	Time (mins)	Flow-I (CFM/ Inches)	Flow-F (CFM/ Inches)	Flow-I (m³/min)	Flow-F (m³/min)	Flow-avg (m³/min)	Volume (m³)	Weight-I (g)	Weight-F (g)	Weight-diff. (g)	1-hr TSP (ug/m³)	Average 1-Hr TSP (ug/m³)	Action/Limit Levels (ug/m³)	Remark
San Po Street Pumping Station CAM1A	02-Feb-06	Fine	0.1N	21	421681	421778	58.2	32	32	1.11	1.11	1.11	64.67	2.8611	2.8694	0.0083	128.4	135.6	342.7/500	
		Fine	0.1N	21	421778	421878	60.0	33	33	1.14	1.14	1.14	68.48	2.8632	2.8731	0.0099	144.6			
		Fine	0.1N	21	421878	421972	56.4	33	32	1.14	1.11	1.13	63.52	2.8465	2.8550	0.0085	133.8			
	07-Feb-06	Fine	0.1NE	21.5	424365	424466	60.6	30	30	1.05	1.05	1.05	63.68	2.8717	2.8816	0.0099	155.5			
		Fine	0.1NE	21.5	424466	424568	61.2	31	30	1.08	1.05	1.07	65.23	2.8555	2.8656	0.0101	154.8			
		Fine	0.1NE	21.5	424568	424667	59.4	30	30	1.05	1.05	1.05	62.41	2.8779	2.8852	0.0073	117.0			
	13-Feb-06	Sunny	0.5NE	20.5	427060	427154	56.4	32	32	1.11	1.11	1.11	62.67	3.6164	3.6287	0.0123	196.3			
		Sunny	0.5NE	20.5	427154	427250	57.6	32	32	1.11	1.11	1.11	64.00	3.6072	3.6166	0.0094	146.9			
		Sunny	0.5NE	20.5	427250	427351	60.6	32	31	1.11	1.08	1.10	66.42	3.6348	3.6424	0.0076	114.4			
	18-Feb-06	Rainy	0.3N	19.5	429747	429847	60.0	33	32	1.14	1.11	1.13	67.57	2.8756	2.8963	0.0207	306.3			
		Rainy	0.3N	19.5	429847	429940	55.8	32	32	1.11	1.11	1.11	62.00	2.8644	2.8698	0.0054	87.1			
		Rainy	0.3N	19.5	429940	430045	63.0	32	32	1.11	1.11	1.11	70.00	2.8539	2.8592	0.0053	75.7			
	24-Feb-06	Cloudy	0.8N	23.4	432440	432540	60.0	32	32	1.11	1.11	1.11	66.67	2.8701	2.8836	0.0135	202.5			
		Cloudy	0.8N	23.4	432540	432640	60.0	32	32	1.11	1.11	1.11	66.67	2.8616	2.8709	0.0093	139.5			
		Cloudy	0.8N	23.4	432640	432740	60.0	32	32	1.11	1.11	1.11	66.67	2.8612	2.8703	0.0091	136.5			
Sheung Shui Heung Floodwater Pumping Station CAM2a	02-Feb-06	Fine	0.2N	21	505455	505550	57.0	32	32	1.21	1.21	1.21	69.07	2.8583	2.8635	0.0052	75.3	74.2	340/500	
		Fine	0.2N	21	505550	505650	60.0	33	33	1.24	1.24	1.24	74.47	2.8449	2.8498	0.0049	65.8			
		Fine	0.2N	21	505650	505745	57.0	33	32	1.24	1.21	1.23	69.91	2.8640	2.8697	0.0057	81.5			
	07-Feb-06	Sunny	0.5NE	21	508139	508235	57.6	32	32	1.21	1.21	1.21	69.80	2.8653	2.8714	0.0061	87.4			
		Sunny	0.5NE	21	508235	508338	61.8	32	32	1.21	1.21	1.21	74.89	2.8455	2.8519	0.0064	85.5			
		Sunny	0.5NE	21	508338	508442	62.4	32	32	1.21	1.21	1.21	75.62	2.8451	2.8492	0.0041	54.2			
	13-Feb-06	Sunny	1.0NE	20.1	510836	510929	55.8	32	32	1.21	1.21	1.21	67.62	3.5999	3.5654	0.0055	81.3			
		Sunny	1.0NE	20.1	510929	511028	59.4	32	32	1.21	1.21	1.21	71.98	3.5969	3.6025	0.0056	77.8			
		Sunny	1.0NE	20.1	511028	511127	59.4	32	30	1.21	1.15	1.18	70.24	3.6039	3.6086	0.0047	66.9			
	18-Feb-06	Rainy	0.8N	19.5	513521	513623	61.2	32	32	1.21	1.21	1.21	74.16	2.8412	2.8544	0.0132	178.0			
		Rainy	0.8N	19.5	513623	513718	57.0	32	32	1.21	1.21	1.21	69.07	2.8574	2.8597	0.0023	33.3			
		Rainy	0.8N	19.5	513718	513824	63.6	32	32	1.21	1.21	1.21	77.07	2.8703	2.8747	0.0044	57.1			
	24-Feb-06	Cloudy	0.1N	23.4	516220	516320	60.0	32	32	1.21	1.21	1.21	72.71	2.8554	2.8676	0.0122	167.8			
		Cloudy	0.1N	23.4	516320	516420	60.0	32	32	1.21	1.21	1.21	72.71	2.8682	2.8748	0.0066	90.8			
		Cloudy	0.1N	23.4	516420	516520	60.0	32	32	1.21	1.21	1.21	72.71	2.8656	2.8703	0.0047	64.6			

Shading indicates an exceedance of Action Level. *Bold and shading* indicates an exceedance of Limit Level.

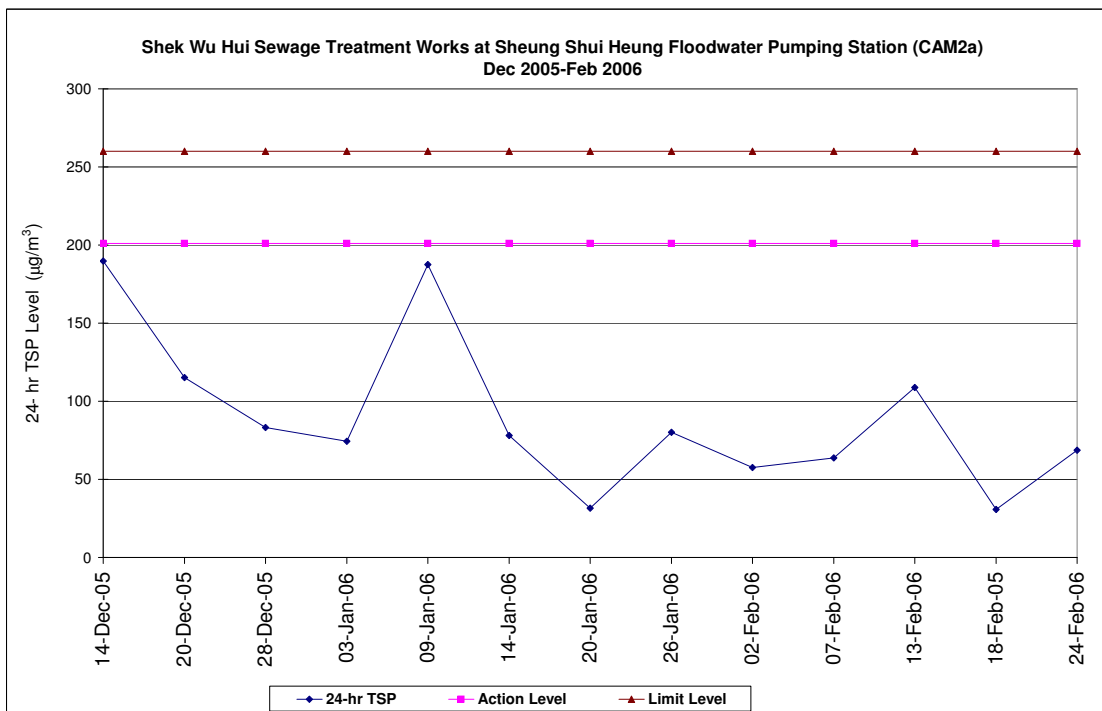
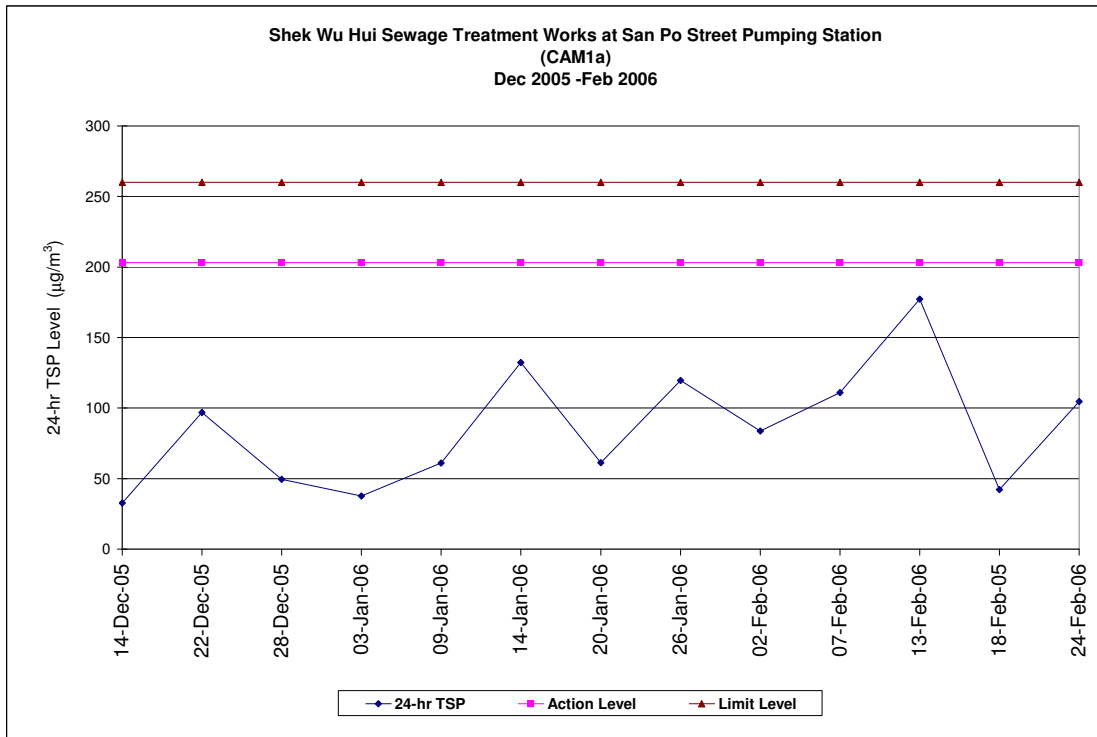


Shek Wu Hui Sewage Treatment Works

Air Quality Impact Monitoring Results (24-Hour TSP)

Location	Monitoring Date	Weather Conditions	Wind Speed with Direction (m/s)	Temp (oC)	Pressure (mmHg)	Timer-I	Timer-F	Time (mins)	Flow-I (CFM/ Inches)	Flow-F (CFM/ Inches)	Flow-I (m³/min)	Flow-F (m³/min)	Flow-avg (m³/min)	Volume (m³)	Weight-I (g)	Weight-F (g)	Weight-diff. (g)	24-hr TSP (ug/m³)	Action/Limit Levels (ug/m³)	Remark	
San Po Street	02-Feb-06	Fine	0.1N	21	766.7	421972	424367	1437	33	33	1.14	1.14	1.14	1640.03	2.8729	3.0104	0.1375	83.8	203/260		
	07-Feb-06	Fine	0.1N	21.5	766.3	424667	427060	1435.8	30	30	1.05	1.05	1.05	1508.68	2.8505	3.018	0.1675	111.0			
Pumping Station CAM1a	13-Feb-06	Sunny	0.5NE	20.5	764.2	427351	429427	1245.6	32	32	1.11	1.11	1.11	1384.00	3.584	3.8292	0.2452	177.2			
	18-Feb-05	Rainy	0.3N	19.5	765.7	430045	432440	1437	32	33	1.11	1.14	1.13	1618.35	2.8603	2.9286	0.0683	42.2			
	24-Feb-06	Cloudy	0.8N	23.4	759.6	432740	435133	1435.8	32	32	1.11	1.11	1.11	1595.33	2.8261	2.9931	0.167	104.7			
Sheung Shui Heung	02-Feb-06	Fine	0.2N	21	766.7	505745	508141	1437.6	33	32	1.24	1.21	1.23	1763.17	2.8588	2.9604	0.1016	57.6		201/260	
Floodwater	07-Feb-06	Sunny	0.5NE	21	766.3	508442	510835	1435.8	32	32	1.21	1.21	1.21	1739.91	2.8319	2.9429	0.111	63.8			
Pumping Station	13-Feb-06	Sunny	1.0NE	20.1	764.2	511127	513522	1437	32	31	1.21	1.18	1.20	1720.29	3.6152	3.8027	0.1875	109.0			
CAM2a	18-Feb-05	Rainy	0.8N	19.5	765.7	513824	516220	1437.6	32	31	1.21	1.18	1.20	1721.01	2.8516	2.9046	0.053	30.8			
	24-Feb-06	Cloudy	0.1N	23.4	759.6	516520	518917	1438.2	32	32	1.21	1.21	1.21	1742.82	2.8556	2.9751	0.1195	68.6			

Shading indicates an exceedance of Action Level. *Bold and shading* indicates an exceedance of Limit Level.

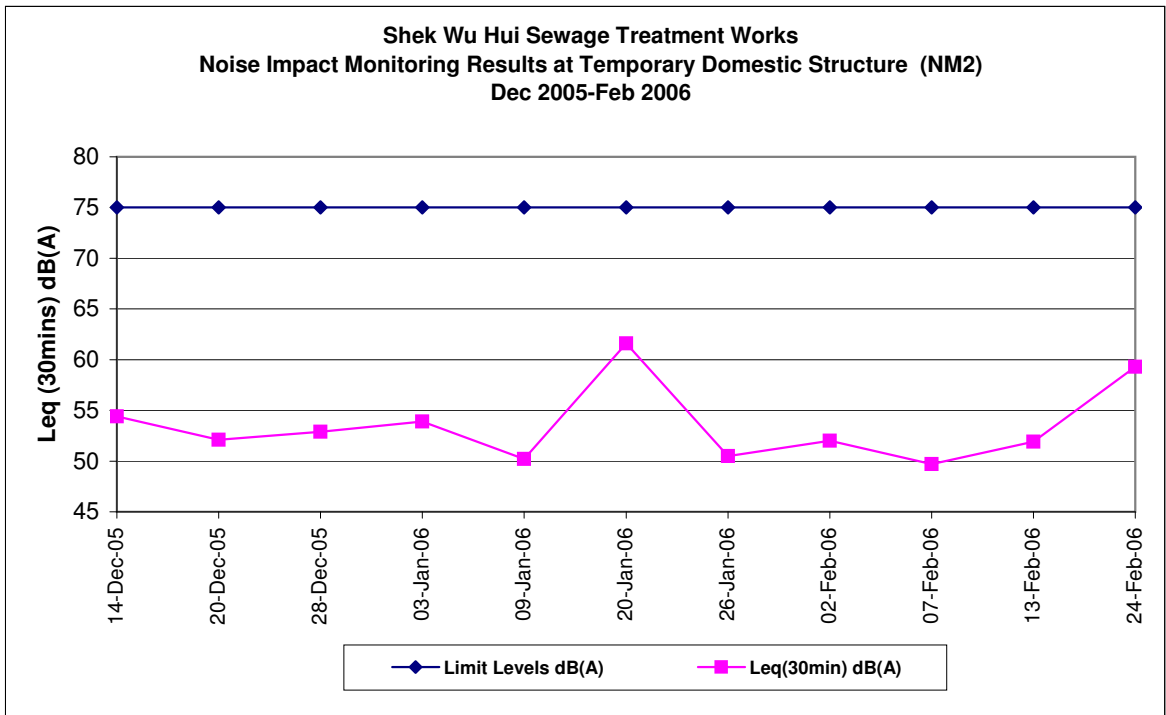
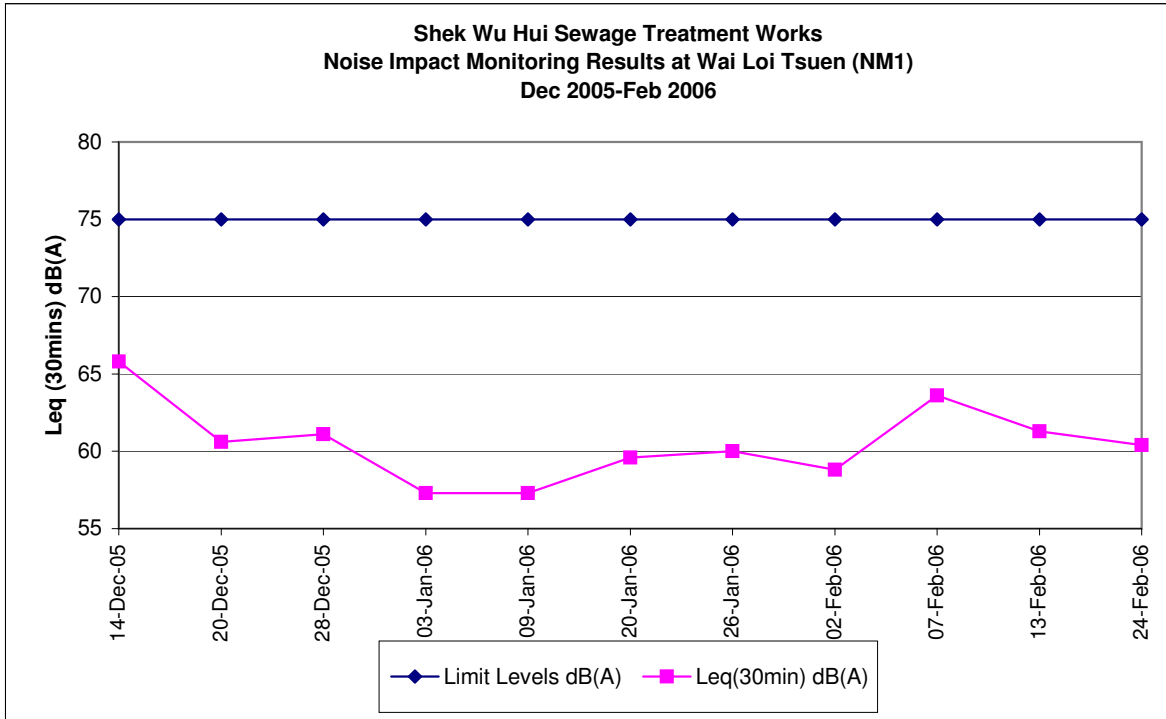


Shek Wu Hui Sewage Treatment Works

Noise Impact Monitoring Results

Monitoring Locations	Date	Weather Conditions	Temperature	Wind Speed	Wind	Start Time	End Time	Limit Levels	L _{eq(30min)}	L _{10(30min)}	L _{90(30min)}	Remark
			(°C)	(m/s)	Direction			dB(A)	dB(A)	dB(A)	dB(A)	
Wai Loi Tsuen NM1	02-Feb-06	Fine	21	0.1	NE	10:00	10:30	75	58.8	61.4	54.4	
	07-Feb-06	Fine	21	0.1	NE	09:45	10:15	75	63.6	65.1	61.6	
	13-Feb-06	Sunny	20.5	0.5	N	10:30	11:00	75	61.3	63.4	56.7	
	24-Feb-06	Cloudy	22.1	0.1	N	13:00	13:30	75	60.4	62.4	55.9	
Temporary Domestic Structure NM2	02-Feb-06	Fine	21	0.2	NE	11:00	11:30	75	52.0	53.6	49.4	
	07-Feb-06	Fine	21	0.1	NE	10:45	11:15	75	49.7	50.9	47.5	
	13-Feb-06	Sunny	20.1	1	N	11:25	11:55	75	51.9	53.7	49.1	
	24-Feb-06	Cloudy	21.3	0.8	N	14:50	15:20	75	59.3	61.9	52.7	

A façade correction of 3 dB(A) was applied to each measurement result. "Shading" indicates an Limit Level exceedance.



Appendix 9

QA/QC Results and Detection Limit

Client: Hyder Consulting Ltd
 Contact: Mr Coleman Ng
 Date of Issue: 03/03/2006
 Client Reference:

TSP MONTHLY QUALITY CONTROL REPORT



ANALYSIS DESCRIPTION	Date of receipt	Initial Weight of the Lab Blank	Final Weight of the Lab Blank	Weighing Date	Weight Difference
UNIT					g
Limit Of Reporting					0.001
ALS Batch No					
HK49268	02/02/2006	3.3696	3.3697	02/06/2006	<0.0010
HK49299	02/04/2006	3.5573	3.5574	02/07/2006	<0.0010
HK49360	02/07/2006	3.5573	3.5574	02/09/2006	<0.0010
HK49361	02/07/2006	3.6712	3.6712	02/09/2006	<0.0010
HK49402	02/08/2006	3.6412	3.6415	02/10/2006	<0.0010
HK49502	02/14/2006	3.5383	3.5380	02/16/2006	<0.0010
HK49611	02/20/2006	3.5383	3.5384	02/21/2006	<0.0010
HK49771	02/27/2006	3.6412	3.6411	03/01/2006	<0.0010
HK49772	02/28/2006	3.5323	3.5324	03/01/2006	<0.0010


 Godfrey K F Chan
 Supervisor - Inorganics

Appendix 10

Cumulative Statistics of Complaint, Notification of
Summons and Successful Prosecution

Reporting Month	Number Received in the Reporting Month				Cumulative Number			
	Complaint	Notification of Summon	Successful Prosecution	EPD Site Inspection Record	Complaint	Notification of Summon	Successful Prosecution	EPD Site Inspection Record
February 2006	0	0	0	0	0	0	0	1 (Yellow Ticket)

Cumulative Number of Environmental Complaint

Appendix 11

Upcoming EM&A Schedule

Expansion of Shek Wu Hui Sewage Treatment Works
Impact Monitoring Programme – March 2006 (Tentative)

Date		Air	Noise	Site Inspection
1 Mar 06	Wed			✓
2 Mar 06	Thu	✓	✓	
3 Mar 06	Fri			
4 Mar 06	Sat			
5 Mar 06	Sun			
6 Mar 06	Mon			
7 Mar 06	Tue			
8 Mar 06	Wed	✓	✓	✓
9 Mar 06	Thu			
10 Mar 06	Fri			
11 Mar 06	Sat			
12 Mar 06	Sun			
13 Mar 06	Mon			
14 Mar 06	Tue	✓	✓	
15 Mar 06	Wed			✓
16 Mar 06	Thu			
17 Mar 06	Fri			
18 Mar 06	Sat			
19 Mar 06	Sun			
20 Mar 06	Mon	✓	✓	
21 Mar 06	Tue			
22 Mar 06	Wed			✓
23 Mar 06	Thu			
24 Mar 06	Fri			
25 Mar 06	Sat	✓		
26 Mar 06	Sun			
27 Mar 06	Mon			
28 Mar 06	Tue			
29 Mar 06	Wed			✓
30 Mar 06	Thu			
31 Mar 06	Fri	✓	✓	

Note:

Shaded area indicates public holiday.

Air – Monitoring of three 1-hour TSP and 24-hour TSP at both CAM1a and CAM2a

Noise – Noise measurements at both CNM1 and CNM2 between 0700 and 1900 on normal weekdays

Expansion of Shek Wu Hui Sewage Treatment Works
Impact Monitoring Programme – April 2006 (Tentative)

Date		Air	Noise	Site Inspection
01-Apr-06	Sat			
02-Apr-06	Sun			
03-Apr-06	Mon			
04-Apr-06	Tue			
05-Apr-06	Wed			
06-Apr-06	Thu	✓	✓	✓
07-Apr-06	Fri			
08-Apr-06	Sat			
09-Apr-06	Sun			
10-Apr-06	Mon			
11-Apr-06	Tue			
12-Apr-06	Wed	✓	✓	✓
13-Apr-06	Thu			
14-Apr-06	Fri			
15-Apr-06	Sat			
16-Apr-06	Sun			
17-Apr-06	Mon			
18-Apr-06	Tue	✓	✓	
19-Apr-06	Wed			✓
20-Apr-06	Thu			
21-Apr-06	Fri			
22-Apr-06	Sat			
23-Apr-06	Sun			
24-Apr-06	Mon	✓	✓	
25-Apr-06	Tue			
26-Apr-06	Wed			✓
27-Apr-06	Thu			
28-Apr-06	Fri			
29-Apr-06	Sat	✓		
30-Apr-06	Sun			

Note:

Shaded area indicates public holiday.

Air – Monitoring of three 1-hour TSP and 24-hour TSP at both CAM1a and CAM2a

Noise – Noise measurements at both CNM1 and CNM2 between 0700 and 1900 on normal weekdays

Expansion of Shek Wu Hui Sewage Treatment Works

Impact Monitoring Programme – May 2006 (Tentative)

Date		Air	Noise	Site Inspection
01-May-06	Mon			
02-May-06	Tue			
03-May-06	Wed			✓
04-May-06	Thu	✓	✓	
05-May-06	Fri			
06-May-06	Sat			
07-May-06	Sun			
08-May-06	Mon			
09-May-06	Tue			
10-May-06	Wed	✓	✓	✓
11-May-06	Thu			
12-May-06	Fri			
13-May-06	Sat			
14-May-06	Sun			
15-May-06	Mon			
16-May-06	Tue	✓	✓	
17-May-06	Wed			✓
18-May-06	Thu			
19-May-06	Fri			
20-May-06	Sat			
21-May-06	Sun			
22-May-06	Mon	✓	✓	
23-May-06	Tue			
24-May-06	Wed			✓
25-May-06	Thu			
26-May-06	Fri			
27-May-06	Sat	✓		
28-May-06	Sun			
29-May-06	Mon			
30-May-06	Tue			✓
31-May-06	Wed			

Note:

Shaded area indicates public holiday.

Air – Monitoring of three 1-hour TSP and 24-hour TSP at both CAM1a and CAM2a

Noise – Noise measurements at both CNM1 and CNM2 between 0700 and 1900 on normal weekdays